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ABSTRACT

California has consolidated the administration of funds allocated to its schools through state programs--the Early Childhood Education Act (ECE), the Educationally Disadvantaged Youth Act, the Bilingual Education Act of 1972, and the Miller-Unruh Basic Reading Act--as well as Title I of the Elementary and Secondary Education Act. This report analyzes data on the number and character of program participants, the quality of programs, and student achievement in schools receiving funds from one or more of these sources. The evaluation reveals that over a million students were served and that the number of volunteers involved in school programs more than doubled over the previous school year. Students participating in funded programs tended to be more mobile or transient, more likely to speak second languages, and of lower socioeconomic background than those not served, making comparisons with students in nonparticipating programs inappropriate. Program ratings tended to be good, particularly in grades with ECE funding. Student achievement generally averaged above national norms. Results of two special studies designed to examine indepth the characteristics of ECE schools with increasing and decreasing test scores are also presented. Discussion of the data reported is clarified through use of numerous tables. (Author/PGD)

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1976-77

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I. Summary of Findings and Implications

The major findings of this *Evaluation Report of Multiple-Funded Programs, 1976-77* are summarized below in the order in which the findings are presented in Chapter V: enumeration data on program participants; background characteristics of program participants; indicators of program quality; and student achievement results. A summary of the findings from the special studies described in Chapter VI is also included. A full report of the findings from the special studies will be presented in a companion publication entitled *Report on Special Studies of Selected ECE Schools with Increasing and Decreasing Reading Scores, 1976-77.* The implications of the findings are reviewed briefly at the end of this chapter.

Enumeration Data on Participants

Information gathered on program participants indicated the following:

- More than 1,133,000 students in kindergarten through grade twelve were served through the combined funding sources. This figure represents a 21 percent increase since 1975-76, and it represents 27 percent of the total enrollment in kindergarten through grade twelve in California's public schools. Of the program participants 72 percent were enrolled in kindergarten through grade three; 20 percent were in grades four through six; and 8 percent were in grades seven through twelve. Thirteen percent of the participating students were limited- or non-English-speaking students.
- More than 1,000,000 students received services in the reading, multicultural education, language development, and/or mathematics components.
- More volunteers were involved in school programs than ever before. About 138,000 adult volunteers and 90,000 cross-age (student) volunteers worked in the schools, as compared to a total of 81,000 volunteers of both types in 1975-76.

Background Characteristics of Participants

Compared to nonparticipants, students who participated in school programs supported by early childhood education funds, educationally disadvantaged youth funds, ESEA Title I funds, bilingual education funds, and/or Miller-Unruh funds tended to:

- Have lower socioeconomic backgrounds.
- Include a large proportion of students who spoke English plus a second language.
- Be more mobile/transient.

Such significant differences in student background characteristics make general comparisons between participants and nonparticipants inappropriate.

Indicators of Program Quality

Two indicators of program quality were utilized: (1) reviews of school-level plans; and (2) program quality reviews conducted during monitor and review (MAR) school visitations. The information gathered from the reviews indicated the following:

- More than 3,200 elementary school plans and 460 secondary school plans were reviewed for compliance with applicable statutes and regulations.
- The monitor and review data indicated that all sections of the review instrument yielded an average of "good" ratings for all schools. Those grades with ECE funding, either alone or in combination with other sources, had consistently higher ratings than grades with EDY and/or ESEA Title I funding alone.

Student Achievement

District-reported data from standardized, nationally normed tests indicated that:

- Across all grades students in multiple-funded schools typically exceeded the national average by 1.2 standard score points in reading from the pretest to the post-test.

- Except in grade eleven the test score gains in reading and mathematics of all participating fluent-English-speaking students exceeded the national average.
- In grade three participating students scored slightly above the national average on the reading post-test.
- In grades one and two, students scored above the national average on the post-test in mathematics; students in grade one exceeded the national average by 5.1 standard score points from the pretest to the post-test.
- Students in ECE schools scored at or above the national average on the post-test in reading and progressed at a rate greater than the national average.
- Students in ECE schools scored from 0.5 to 2.6 standard score points above the national average on the post-test in mathematics; students in grade one showed the greatest growth, exceeding the national average by 5.0 standard score points from the pretest to the post-test.
- The average pretest score in reading in ECE-only schools was above the national average. On the post-test the students in these schools exceeded the national average by 1.7 to 3.8 standard score points.
- Data of limited reliability were reported for limited- and non-English-speaking students. While limited-English-speaking students participating in consolidated programs scored below the publishers' norms on the pretest in both reading and mathematics, they tended to progress at a rate greater than that of the publishers' norm group, except in grade ten.
- Across grade levels a greater fluctuation was noted in gain scores for schools in which testing was done on an annual basis than for schools in which testing was done on a within-year basis. No explanation could be offered for this finding.

California Assessment Program (CAP) data on reading achievement in grades two and three showed the following:

- Historical profiles of reading achievement during the period 1973-74 to 1976-77 indicated that grade three students in ECE generally had higher grade scores than the students in those schools had before the schools entered ECE. Reading achievement in ECE Phase I schools and Phase IV schools increased slightly; reading achievement in Phase III schools decreased slightly; and achievement in Phase II schools increased substantially.[1]
- A longitudinal analysis of California Assessment Program reading achievement scores from 1975-76 to 1976-77 showed that students in ECE schools made greater gains than students in a similar group of non-ECE schools.
- Changes in average residual grade three reading achievement scores, on the basis of the number of years a school had participated in ECE, showed improvement in achievement with years of participation.[2] The analysis indicated a small but positive change.

Findings from the Special Studies

A limited trend toward declining third grade residual reading scores in ECE schools whose 1973-74 *Entry Level Test* scores were in the lowest 20 percent was reported in the *Evaluation Report of ECE, ESEA Title I, and EDY, 1975-76.* That finding led to two special follow-up studies that were designed to examine in-depth the characteristics of ECE schools with increasing and decreasing scores. A study of school processes by the Department of Education showed the following:[3]

- Although breakdowns in the translation of the intent of ECE into educational experiences for children were observed in both types of schools (those with declining scores and those with increasing scores), they were more evident in the schools with decreasing scores.
- Positive leadership and management of change, at both the district and school levels, characterized the schools with increasing scores; a lack of leadership or ineffective leadership was noted at the schools with decreasing scores.
- Teachers' attitudes and expectations were significant factors. Where teachers were accountable for their students' performance and received accurate information about that

[1] Phase I schools entered ECE in 1973-74; Phase II schools entered in 1974-75; Phase III schools entered in 1975-76; and Phase IV schools entered in 1976-77.

[2] A residual score is the difference between the predicted average score of the students in a school and the actual score.

[3] Generalizations about the findings should be confined to the study population of ECE schools that scored in the lowest 20 percent of schools on the 1973-74 *Entry Level Test* (grade one) and that had an increase or decline in California Assessment Program third grade reading achievement residual scores from 1972 to 1976.

performance, their behavior was likely to have a positive effect on students' test scores.

- Staff development activities that were closely tied to the instructional program were found to be more effective than those of a non-specific nature. Courses in multicultural understanding had a positive effect on the achievement of limited- and non-English-speaking students.
- Attempts to individualize the instructional program with the advent of ECE had positive effects on student achievement when *people* were responsible for learning; negative effects were noted in those schools in which the emphasis was on programs and materials.
- Reading scores declined in schools in which the curriculum consisted primarily of reading; scores increased in schools in which students had an opportunity to apply reading skills in a range of curricular areas.
- Four problems with regard to evaluation were common in all schools regardless of whether their scores were increasing or decreasing: (1) school personnel had minimal information or misinformation about the tests and test results; (2) school personnel failed to use the information that was available; (3) because monitor and review ratings and test scores measure different aspects of school functioning, schools sometimes had difficulty integrating and interpreting both types of information; and (4) the means for identifying and assessing the progress of limited-English-speaking and non-English-speaking children and for evaluating bilingual education programs were inadequate or nonexistent.

A special study of classroom processes was conducted by SRI International. Half of the schools in the study were also part of the Department's study sample.

An analysis of the relationship between reading achievement scores and classroom instructional process variables showed the following:

- A positive relationship was found between a high third grade reading achievement gain and a low ratio of students to adults.
- Students in classrooms in which the ratio of students to adults was low were absent less often than those in classrooms in which the ratio was high.
- Highly controlled classroom environments in which teachers provided systematic instruction and a great deal of positive reinforcement contributed to gains in third grade reading achievement.
- Small-group instruction was more efficient than work done with one child at a time during the class period. In classrooms in which reading achievement gains were small, adults often worked with one child at a time, and the other children did not receive the supervision and guidance that they needed to continue to work on a task.
- Classrooms within schools tended to be very different in terms of both the achievement gains made by children and the instructional processes used by the teachers.

Major Implications from the Special Study of Selected ECE Schools

The implications of the above findings were as follows:

- The expectations for what children can learn should be raised in many schools, especially those with high minority populations. This includes the teachers' expectations with regard to:
  1. The types of activities for children (reading and writing words, sentences, and paragraphs rather than just filling in the blanks, providing rote responses, playing non-instructional games, working puzzles, and working with expensive media materials and equipment)
  2. The pace of each child's progress (each child making optimal progress consistent with the child's development rather than each child working as slowly as he or she desires to work)
  3. The quality of children's work (regardless of the type or level of work, good workmanship rather than half-hearted, sloppy efforts)
- Communication—whether written or oral, from the state, from the district, or from within the school—should be more frank and personal, and the emphasis should be on the primary role of human beings in the educational processes. Too much of the information received by teachers, parents, and children is couched in the abstract language of "programs," which does not help people understand what they are to do.
- The importance of good leadership, regardless of its source (principal, reading coordinator, group of teachers, or district) is fundamental.

Good leadership entails, among other things, close contact and involvement with those who have operational responsibility for implementing decisions, such as teachers and aides; mutual trust and respect; anticipatory planning; and support for ongoing skills developments. These and other good leadership characteristics should be fostered through personnel practices and policies, especially the appointment of school principals, and through staff development programs specifically designed to improve the leadership capabilities of those in leadership roles at the school, district, and state levels.

- Staff development programs should foster a clear sense of purpose and commitment to the program and should help personnel integrate new programs and skills with existing practices. The emphasis in staff development should be on helping people to do their jobs better. Staff development programs should be people specific; that is, aides should be trained for the aide's job, and teachers should be trained for the teacher's job.
- Teachers should pay close and frequent attention to how each child responds to instruction and should occasionally use informal assessment devices to check student progress. Initial instruction should be provided by the teacher (or some other person) rather than by means of media, materials, or learning stations. Students should receive instruction in a variety of reading skills and should have opportunities to use and apply the skills in various curricular areas. The curriculum should be such that the needs of all students can be met, and especially those of limited- and non-English-speaking students.
- In some schools with full bilingual education programs, heavy emphasis is placed on instruction in the students' primary language during their early years of elementary school; in the later years emphasis is placed on instruction in English. A need exists for some way of assessing the students' progress during both phases of their elementary school education.

The specific implications for Department of Education action are discussed below. The current practice of relying heavily on numerical indicators of student achievement and program quality ratings provides information that is too limited to provide for adequate examination of the impact of funded programs at the school level. The Department is initiating action in six areas to build a broader, more useful information base for program evaluation and program improvement:

- In cooperation with local educational agencies, the Department is developing in 1977-78 means to use other indicators of the impact of programs, including indicators of affective development, student attitudes, and school environment.
- The many practical findings of the special studies indicated that the approaches involving the case study and classroom process observations are effective in examining the nature and impact of programs. Such approaches will be utilized again.
- The Department will assist in local evaluation efforts by developing a network among school districts for the exchange of information regarding special evaluation and research studies. The network will facilitate the exchange of information—both study techniques and findings—among people with common interests and will include newsletters, network exchange services, and technical assistance.
- Current methods of reviewing school programs are being reexamined in light of experience as well as the provisions of AB 65. This reexamination will include consideration of various alternative approaches to program review, while maintaining the consistency of ratings that is necessary across schools. Alternatives that may be considered include in-depth reviews of the special needs of schools in which student achievement is low and review processes that focus on the unique characteristics of intermediate and secondary schools.
- Because reasons for year-to-year changes in school residual scores (based on California Assessment Program *Reading Test* data) are not clear, the Department plans to improve the capacity of Department personnel to understand and examine school situations that may influence performance on the California Assessment Program *Reading Test.* Field service consultants, who regularly provide technical assistance and conduct program reviews at schools, will receive training from California Assessment Program personnel in the interpretation of aggregate and school-level data. This training will be designed to assist the field service personnel in their

technical assistance and program review efforts.

- Since a surprisingly large fluctuation in gain scores was noted across grade levels, the Department will conduct a thorough analysis of the relative advantages of annual testing as compared to within-year testing.

The problem of assessing the progress of limited- and non-English-speaking students is a concern of both school districts and the Department. The problem is not just the lack of appropriate testing instruments; an even more pressing need exists to define better the desired nature and types of services for limited- and non-English-speaking students at the school and classroom levels. Schools are statutorily required to provide instruction in a language that is understandable to students who have been identified as limited- or non-English speaking, but instructional goals and desired outcomes have not yet been developed for such students. It is essential to discover what instructional practices are most effective in meeting the current and long-term academic and linguistic needs of limited- and non-English-speaking students. Toward addressing these concerns, the Department has formulated the following plans and/or taken the following actions:

- To provide for a coherent instructional program, the Department has developed guidelines for interpreting the various requirements of ESEA Title VII, AB 2284, and AB 1329.
- To provide for greater specificity in the bilingual education program prototypes described in the enabling legislation, the Department is preparing operational definitions for dissemination to schools and school districts.
- To determine what types of curricula and instructional practices are most effective for limited- and non-English-speaking students, the Department is including an extensive case study review of selected bilingual education programs in its evaluation plan.
- To make known the bilingual assessment instruments that do exist, the Department has developed an annotated bibliography of selected achievement, affective, behavioral, diagnostic, and language proficiency instruments. The Legislature has also provided funds for the development of an achievement test in Spanish.

II. Introduction

This *Evaluation Report of Multiple-Funded Programs, 1976-77* is designed to provide a description and interpretation of the effects in 1976-77 of local school programs funded with early childhood education (ECE) funds; educationally disadvantaged youth (EDY) funds; funds provided under provisions of Title I of the Elementary and Secondary Education Act of 1965 (ESEA Title I); bilingual education (AB 2284) funds; and Miller-Unruh Basic Reading Act funds. Although these funds are allocated through separate statutory authorizations, their administration has been consolidated to improve school programs through a comprehensive process of systematic program planning, implementation, and evaluation at the district and school levels. This comprehensive approach to program improvement reflects the cooperative efforts of the Legislature, the State Board of Education, and the Department of Education to support district and school efforts to provide quality educational programs for all students in California. These efforts incorporate three dimensions: (1) the movement toward an equitable base level of school support that lessens the disparities in wealth among districts; (2) the recognition that various levels of support and assistance are required to meet the special needs of such students as the educationally disadvantaged, limited- and non-English speaking, and physically and mentally exceptional; and (3) the provision of support and encouragement to ensure that funds and program improvement efforts to meet the unique educational needs of all students are coordinated through a planning, implementation, and evaluation process at each school site.

A variety of educational services is provided for by the additional funds from these sources. The funding sources represented in the schools vary in accordance with the needs of the students. Approximately two-thirds of the public schools in California receive funds from one or more of the five funding sources examined in this report. The combined annual expenditures from these sources total approximately $360 million.

The responsibilities of the Department of Education for the evaluation of the effects of programs funded by these sources are broad and complex. In addition to publishing this mandated state-level evaluation report, the Department assists districts with local program evaluations and performs local program compliance reviews and program quality reviews for purposes of program improvement. The Department also conducts special follow-up studies of evaluation findings reported in previous years.

Senate Bill 1698 (Chapter 791, Statutes of 1976) amended Education Code Section 491.3 (Section 33403 of the reorganized and revised code) to provide for a consolidated evaluation of programs funded under several different funding sources, including the following:[1]

1. Early Childhood Education (ECE) Act
2. Educationally Disadvantaged Youth (EDY) Act
3. Elementary and Secondary Education Act (ESEA), Title I
4. Bilingual Education Act of 1972 (AB 2284)
5. Miller-Unruh Basic Reading Act

In response to SB 1698 of 1976, the Department developed a comprehensive state-level evaluation designed to examine program coordination resulting from the consolidation effort and to collect the required enumeration, implementation, and student achievement data.

The evaluation was designed to address the following broad questions:

1. For what statewide educational purposes were consolidated application funds used?

[1]The Education Code was reorganized and revised in 1976. In subsequent citations first references are the section numbers from the reorganized code (Assembly Bill 3100, Chapter 1010, Statutes of 1976, as amended by Assembly Bill 3101, Chapter 1011, Statutes of 1976), which became effective on April 30, 1977. Section numbers in parentheses or brackets are from the 1973 code, as amended.

2. What was the extent of participation in programs funded through the five sources?
3. How much money was allocated through the various funding sources, and how was it spent?
4. What was the nature of the implementation of funded programs?
5. What inferences could be made about the quality of the school programs and services provided for by the funding sources?
6. What inferences could be made about the performance of students who received services in the funded programs?
7. What were some characteristics of local efforts to evaluate school programs?

In addressing these questions and compiling this report, the Department used information from annual school and district reports, reviews of school plans, and on-site program reviews; student achievement data, including California Assessment Program reading scores and scores from publishers' norm-referenced tests; information from a special case study of a selected sample of schools with low-achieving students; and information from a sample of school and district evaluations.

This report consists of seven chapters. Chapter I contains a summary of the evaluation findings and a summary of the implications of those findings. Chapter II is the introduction to the report. Chapter III provides a description of the funding sources and the programs supported by the funds from those sources. Chapter IV includes descriptions of the methodologies and procedures used in the evaluation and a discussion of their advantages and limitations. The findings, including enumeration data, data on participants, and student achievement data, are presented in Chapter V. Chapter VI contains findings from the special studies of selected ECE schools with low student achievement. Characteristics of local evaluation efforts are reported in Chapter VII.

III. Description of Funding Sources and School Programs

Chapter III of the evaluation report contains descriptions of the funding sources, legislative intents, goals, specific eligibility criteria, and the scope and nature of the district and school programs supported by the various funding sources.

Funding Sources

Five major funding sources are coordinated through the consolidated application and evaluation processes. Four are state sources: (1) Early Childhood Education (ECE) Act; (2) Educationally Disadvantaged Youth (EDY) Act; (3) Bilingual Education Act (AB 2284); and (4) Miller-Unruh Basic Reading Act. The fifth funding source, the Elementary and Secondary Education Act (ESEA), Title I, is a federal source. Participating schools may receive funds from as many as five or as few as one of the funding sources. They use the funds for which they are eligible in a manner set forth in a coordinated, comprehensive plan that is designed in accordance with the funding source program goals, specific student eligibility criteria, and legislative intents. In their planning effort schools assess school and individual student needs to define school program goals and to develop the necessary instructional and support services to achieve the goals.

Chart III-1 shows how funds flow from the sources to provide for services to students. From the figure one can readily see that school and student eligibility for funds and services varies from source to source. However, once the funds are allocated, they are integrated at the school level to support a variety of services designed to meet the unique needs of eligible students. Thus, in schools receiving funds from more than one source, the separate sources are utilized to provide coordinated services, which, other than being targeted at eligible students, need not be identified individually on the basis of source of funding.

The descriptions presented below reflect the statutes and regulations that were in effect and the procedures that were used during the 1976-77 school year. The reader should note that recently enacted legislation, notably Assembly Bill 65 (Chapter 894, Statutes of 1977), will markedly change the funding allocation procedures for various state funding sources.

Early Childhood Education Act

The early childhood education legislation (Chapter 1147, Statutes of 1972) was designed to provide an "umbrella" or framework under which primary education (kindergarten through grade three) in California could be reformed or restructured. Integral to the umbrella approach is the coordination of categorical funding to provide additional services to meet the needs of special populations within a school. The primary goal of ECE is to provide for all students in kindergarten through grade three an education that is designed to meet their unique needs, talents, interests, and abilities. The extensive participation of parents and the community in general in the education of children in the early grades was also called for in the ECE legislation. Early childhood education differs from other funding sources in that through ECE, funds are allocated to districts for the purposes of reforming and restructuring total school programs so that they can address the individual needs of all children in kindergarten through grade three. The other funding sources, though allocated to districts for eligible schools and identified students, provide for supplemental services to subsets of a school's population, not the entire kindergarten through grade three population.

Each year at least half of the ECE funds for any participating district must be used at those schools that have the greatest "educational need." The measure of educational need is the percent or number of students scoring at or below the 25th percentile on standardized, nationally normed reading or mathematics achievement tests. The other half of the ECE funds may be used for any

CHART III-I

Descriptive Data on Funding Sources for Multiple-Funded School Programs, 1976-77

Data categories	Programs				
	Early childhood education	Educationally disadvantaged youth	ESEA Title I	Bilingual education	Miller-Unruh
Eligible grades	(K–3)	(K–12)	(K–12)	(K–12)	(K–6)
Authorizing agency and allocation procedure	Legislature; money to Department of Education	Legislature; money to Department of Education	Congress; money to U.S. Office of Education and U.S. Office to Department of Education; money to counties on basis of poverty index	Legislature;money to Department of Education	Legislature; money to Department of Education
Basis on which State Department of Education distributes money to districts	Success of ECE schools	Index of low income, transiency, and limited- and non-English-speaking students	Aid to Families with Dependent Children (AFDC) count	Competitive project application	Previous participation of schools within district
Basis on which district distributes money to schools	School plan (50 percent must be spent at schools with lowest achievement)	Low achievement	Poverty indexes	School plan	Need for reading specialist position
Basis on which schools provide services	To all K–3 students on basis of individual needs; use of other funding sources to aid in program planning and coordination of services	To identified K–12 students on basis of low achievement; priority given to youngest students	To identified K–12 students on basis of low achievement; priority given to youngest students	Bilingual services to classrooms identified in project application	To identified K–3 or 4–6 students on basis of low reading achievement

combination of schools that the district selects, since all schools are eligible for funding.

Upon State Board of Education approval of a school's proposed program, ECE funds were allocated to districts in 1976-77 on the basis of $140 per student enrolled in kindergarten through grade three. An additional $70 was allocated for each student who scored at or below the 25th percentile of national norms in reading or mathematics achievement. A district could not receive the additional $70 for more than 25 percent of the participating students in the district.

Educationally Disadvantaged Youth Act

State funding for educationally disadvantaged youth (EDY) was authorized by Chapter 1406, Statutes of 1972 (SB 90). Educationally disadvantaged youth funds are intended to provide funds to support quality educational services for low-achieving students.

Educationally disadvantaged youth funds are allocated to school districts in accordance with a formula that includes indexes of limited- and non-English-speaking students, transiency, and poverty. The formula is given in Appendix A.

Once district eligibility for EDY funding is established, districts select those school attendance areas that include the students with the greatest educational need. School need is determined by either the number or percent of students scoring below the 25th percentile on standardized achievement tests in reading and mathematics. All students who are in schools that receive EDY funds and who score below the 50th percentile on standardized achievement tests are eligible for services. Under provisions of the Educationally Disadvantaged Youth Act, EDY funds are used to serve only those students enrolled in public education programs.

Elementary and Secondary Education Act, Title I

Title I of the Elementary and Secondary Education Act of 1965 authorizes funding for educational programs that are designed to benefit students from low-income families. Title I funds are allocated to California on the basis of the number of children from low-income families in each county. The Department of Education then allocates funds to school districts within counties on the basis of Aid to Families with Dependent Children (AFDC) data from the counties. Within a school district schools are ranked on the basis of the poverty of the populations they serve. Schools with a poverty index exceeding the district average poverty index are eligible for Title I funds.

Once ESEA Title I funds are allocated to a school, students are selected for participation on the basis of their educational need, which is defined to include students scoring below the 50th percentile on standardized achievement tests or those who have serious learning deficiencies because of linguistic, social, cultural, or economic isolation.

While ESEA Title I funds may be expended for students at all grade levels through grade twelve, state regulations require that the youngest eligible children within the district be served first when categorical aid monies are insufficient to serve all eligible children.

Students attending nonpublic schools are eligible for services provided for by ESEA Title I funds if they live in an eligible attendance area and are educationally deprived. ESEA Title I funds are also provided to the state to serve handicapped students living in state institutions, migrant students, and students in state institutions for the neglected or delinquent.

Bilingual Education Act of 1972

The Bilingual Education Act of 1972 (Chapter 1258, Statutes of 1972) (AB 2284) was enacted to establish bilingual, bicultural programs for limited-English-speaking and non-English-speaking students.

Districts submit project applications, and funds are awarded through a competitive grant process. Programs are developed in the context of the intent of the Bilingual Education Act, which includes (1) the students' development of fluency in English as well as competence in their primary language; (2) the provision for positive reinforcement of students' self-concepts; and (3) the development of intercultural awareness among students, parents, and instructional staff.

Miller-Unruh Basic Reading Act

In 1965 the Legislature passed the Miller-Unruh Basic Reading Act (Education Code sections 54100–54180 [5770 through 5798]) to provide reading specialists "for the prevention and correction of reading disabilities at the earliest possible time in the educational career of the pupil." School eligibility for Miller-Unruh funds was determined on the basis of reading scores at the time the funds were first allocated. The highest priority is given to students in grade one; second priority is given to students in grades two and three.

School Programs

As was described in the previous section, funds from five major sources are appropriated for use in eligible districts and schools. School districts apply for funds from these sources by submitting to the State Department of Education Form A-127D, Consolidated Application for Funds for Educational Programs. On the basis of state regulations and district policy (for certain funding sources only), school districts determine the amounts from each funding source to be allocated to the schools in the district.

School Restructuring Through Early Childhood Education

Schools whose funding sources include early childhood education are unique with respect to schools with all other funding sources or combination of funding sources. Because early childhood education funds are not "categorical" funds, ECE programs are designed for all kindergarten through grade three students at participating schools. The concepts of restructuring school processes and operations encompass the entire school in the primary grades. All funds received by the school, including basic aid, district support, and categorical funds, are to be used in support of a unified instructional program in which all of the restructuring concepts are incorporated.

The instructional program in an ECE school should be such that the needs, interests, and capabilities of each child are provided for. The instructional program should also provide for instructional settings, groups, materials, and instruction that will enhance each child's academic, emotional, and social development. Each child in an ECE school should have access to assistance and attention from classroom teachers, aides, volunteers, parents, and cross-age tutors as needed. Curricular emphasis should be on reading, mathematics, language development, and multicultural awareness. Children's health needs should receive appropriate attention. Parents should be encouraged to participate in classroom activities, as school advisory committee members, and as volunteers in other ways; and they should have an opportunity to broaden their knowledge of their child's education. All kindergarten through grade three staff members should have opportunities to increase their knowledge and skills so as to be better able to provide an effective instructional program. Information gathering, evaluation, and decision making are participatory; that is, the various members of the school community assist in making the decisions that affect them most. The needs of students with limited or no English language experience should be addressed through instruction in English and in their primary language, and staff development programs designed to help the school staff better meet the needs of such students should be provided.

Students with special needs in ECE schools that develop an overall kindergarten through grade three school plan are to receive special services in a manner that provides for coordination with the overall school plan. The special services are directed toward only the students with special needs, and they are designed to serve as a valuable supplement to the services that all students receive. These services must be over and above those provided in the regular instructional program. Some examples of services over and above those of the regular program are additional time and attention from aides; special assistance from a resource specialist teacher in the classroom; periodic visits to a resource room or resource center that might have special audiovisual equipment, books, or instructional materials; additional time with the school nurse or counselor; and cultural enrichment activities such as visits to museums, government buildings, parks, and other community facilities. All of the services just described could be provided from the funds allocated to meet the students' special needs.

School Programs for Students with Special Needs

Schools that receive funds to serve students with special needs are required to plan only with respect to the subpopulation of students with special needs. Such schools include ECE schools that receive special funds to serve students in grades four through six. All areas of the curriculum are to be addressed in a plan that provides for instruction based on the identified needs of the low-achieving students only. Parent participation and parent education are to be emphasized. All additional services are directed toward low-achieving students only. Staff development activities are required to enable teachers and paid and volunteer staff to provide the special services for the identified students. Any of the special services described in the above section on ECE schools might be planned for in a school receiving funds only for students with special needs. The program designed for students with special needs should be well coordinated with the school's basic instructional program.

All schools that complete and submit a school level plan must address within the plan (and thus in

the school's program) the special needs of the limited- and non-English-speaking students enrolled. Such students are to receive instruction designed to improve their mastery of English, including their skills of speaking, reading, and writing. They are also to receive instruction in all curricular areas in their primary language until they are able to benefit from instruction in English only. Schools typically employ bilingual aides and bilingual resource teachers and purchase special materials in the second language to meet the needs of limited- and non-English-speaking students.

While all schools must provide for the needs of limited- and non-English-speaking students regardless of the funding source(s) from which they may receive funds, some schools also have bilingual education programs funded under provisions of AB 2284 of 1972. The programs at those schools must include one or more classrooms in which a bilingual, biliterate teacher provides instruction in the students' primary language and in English. Two-thirds of the students in a bilingual classroom must be limited- or non-English-speaking children; at least one-third must be fluent-English-speaking students. Student needs are to be assessed in both languages; and continuous assessment of student progress, instruction appropriate to the individual student, and evaluation and modification of the instructional program should all be features of bilingual education classrooms. Instructional materials and an environment that fosters understanding and pride in the students' culture and language and in the dominant culture and language are to be provided. Staff inservice training activities, parent involvement activities, and other support services should be provided in the same manner as in the programs previously described.

Classroom aides in bilingual education classrooms are to be bilingual; and students should have many opportunities to see, hear, and speak their primary language. In addition to instruction in reading, writing, and other curricular subjects in their primary language, students should receive instruction in oral and written English as their mastery of reading in their primary language warrants.

Secondary School Services for Students with Special Needs

Secondary schools are eligible only for funds to be used for students with special needs (low-achieving students). The funds are to be used in the development and implementation of instructional services that are over and above those available to all students in the regular school program. Typical services are those provided by classroom aides, in special reading or mathematics laboratories, and by teachers with special skills in remedial work. Classroom aides in secondary schools are trained to give assistance to those students in the class who are eligible for program participation. In some secondary schools special laboratories are provided through compensatory education (Title I/SB 90) funding. Students may be assigned to the laboratory on a temporary basis as individual assessment warrants such assignment. The laboratory experience must supplement a student's regular classroom instruction. Specially skilled teachers may assist identified students in the regular classroom or in a laboratory or resource center, using individual assessment procedures, educational media, and remedial materials provided with compensatory education funds. Staff development activities are required for all staff members who have responsibilities for the identified student participants. At the secondary level the supplementary instructional program is usually confined to reading and/or mathematics. Regulations require that the youngest students be served first, and many programs in secondary schools serve students in the ninth and/or tenth grades only since serving all eligible students in these grades frequently exhausts the funds available to support the program.

Schools with Miller-Unruh Reading Specialists

Some schools with kindergarten through grade six have a reading specialist supported by Miller-Unruh Basic Reading Act funds. In schools that are involved in comprehensive school-level planning (and that receive funds from any of the other funding sources), the services of the reading specialist must be included in the school's instructional plan as part of the integrated services that are available to meet the needs of each student.

Miller-Unruh reading teachers work directly with students with reading deficiencies, providing remedial work and conducting other activities. Miller-Unruh teachers typically give first priority to first-grade students. The reading specialist may also work with classroom teachers as a resource person to help them meet the varied needs of students in the area of reading. No standard Miller-Unruh program exists; rather, various patterns of services are provided by Miller-Unruh teachers. Services, whether in a school in which the Miller-Unruh teacher is the only "extra" or in a school in which

the instructional program is supported by several funding sources, are determined at the school level.

Summary

The five consolidated application funding sources discussed in this report provide the necessary support to implement school restructuring through ECE and to provide to eligible students services above and beyond those available through the regular instructional program.

School programs developed through these funding sources are of two types: (1) those designed to restructure the total program in kindergarten through grade three; and (2) those that provide services for students with special educational needs.

Restructuring efforts in ECE schools are characterized by (1) schoolwide planning for the restructuring of the program in kindergarten through grade three to address the needs of all students in these grades; and (2) planning for the use and coordination of all available resources—basic aid, district support, and categorical resources within the overall "umbrella" of the ECE restructuring plan.

Services for students with special educational needs are characterized by (1) targeting of services only to identified, eligible students; and (2) comprehensive planning for "over and above" services to ensure that they address the individual needs of each identified student.

It is also important to note here that since each participating school and its students have unique characteristics, no single program or set of features characterizes a "model" program.

IV. Methodology, Procedures, and Limitations

Chapter IV includes descriptions of the methods, procedures, and instrumentation used to compile and analyze the data for this evaluation report. The methods described include those that were used to collect data to answer questions about program participation and expenditures, questions related to the nature and the quality of school programs and services, and questions about the achievement of students who received services. The advantages and limitations of the major data sources and of the special technical studies are discussed. Also included is a description of the methodologies used to select schools for the special case studies.

Information and Data Collection Procedures

In examining the effects of programs funded through the consolidated application funding sources, the Department considered the following:

- Enumeration data, including allocation and expenditure information, describing the scope of school programs supported through the five funding sources
- Indicators of school program quality
- Indicators of student achievement in reading and mathematics
- Circumstances associated with increasing and decreasing reading scores
- Examples of local evaluation efforts

The reader should note that drawing inferences from a review of a single type of data, such as student achievement data, would not provide for a comprehensive look at the outcomes of programs. This report is therefore based upon a series of analyses of information pertaining to the areas described above.

The sources of data that were used in the evaluation of programs that received funds through the consolidated application in 1976-77 are listed in Chart IV-1. These data sources are described in terms of (1) the level of the agency that completed the instrument; (2) the instrument that was used to gather the data; (3) the agency that completed the instrument; and (4) the type of data collected. Many of the instruments listed were also used for other purposes, such as determining participant eligibility and planning at the school, district, and state levels.

Enumeration Data on Participants

All participating schools were asked to file an end-of-year report that included information about the numbers of students who received services provided for under each funding source, the numbers of volunteers who worked in the programs, and the numbers of personnel hired with funds from the various funding sources. Self-reported enumeration data were verified by data-editing procedures established by the Department.

Allocation and Expenditure Data

Information about the percents of expenditures in the various budget categories, for each of the five funding sources, was obtained by examining a sample of preliminary district financial reports.

Indicators of Program Quality

As described earlier, a major goal of the ECE restructuring effort is to improve instruction and thereby increase student achievement in basic skills. In most cases such improvement requires institutional changes that affect the goals, roles, and environment of participating districts, schools, staffs, and communities. The collective effects of institutional change are reflected in the quality of the programs in participating schools.

In 1976-77 the Department of Education used two methods to examine program quality: (1) reviews of school program plans; and (2) on-site program quality reviews and program compliance reviews.

School Plan Reviews

All schools that received funds through the consolidated application were required to engage in

CHART IV-1

Data Sources Used in the Evaluation of ECE, ESEA Title I, EDY, Bilingual Education, and Miller-Unruh Programs, 1976-77

Level of educational agencies	Instrument(s) used to gather data	Agency completing instrument	Types of data collected
Enumeration data			
Elementary and secondary schools with multiple funding	Phase I, Consolidated Evaluation Report (Form E-127P)	Schools	Enumeration of pupils, program personnel, and volunteers
Districts with Miller-Unruh funding	Form J-10-A	District office	Participating schools
Program Quality			
Districts receiving multiple funding	Form A-127D	District office	District-level allocation plans and application for funding
Elementary and secondary schools with multiple funding	Form A-127ES Form A-127Sec	Schools	School-level plans: needs assessment report and description, objectives, activities, evaluation, dissemination and budget
Elementary schools with multiple funding	School-level plan critique	State Department of Education	School-level plan specifications
Selected elementary schools	Program Quality Review Instrument School Level Program Compliance Review Instrument District Level Program Compliance Instrument	State Department of Education	On-site review and rating of program implementation
Selected sample of ECE schools with declining and increasing student achievement	Special study	State Department of Education and SRI International	School case studies and classroom observations
Student achievement data			
Elementary and secondary schools with multiple funding	Phase I, Consolidated Evaluation Report (Form E-127P)	Schools	Pupil achievement on publishers' norm-referenced tests (pretest and post-test)
All elementary schools	California Assessment Program *Entry Level Test* (grade one) and *Reading Test* (grades two and three)	Schools	Assessment of entry-level educational skills at the beginning of grade one; reading skills at the end of grades two and three

a systematic planning process for each of the following program components:

- Language development
- Reading
- Mathematics
- Multicultural education
- Staff development
- Parent participation
- Parent education
- Health/auxiliary services

All elementary schools that received ECE, EDY, ESEA Title I, or bilingual education funds prepared and submitted comprehensive program plans for 1976-77. For the majority of these schools, the planning process was implemented as part of the ECE restructuring efforts. Secondary schools that received EDY, ESEA Title I, and/or bilingual education funds conducted planning in much the same manner as the elementary schools; each submitted a school program plan.

School plans submitted to the Department of Education were reviewed by Department personnel or by trained readers from offices of county superintendents of schools or school district staffs. Two types of plan reviews were returned to schools: (1) a compliance review, in which were indicated the areas in which the school plan was out of compliance with regulations; and (2) a quality critique, in which possible weaknesses in the program design were indicated. In previous years quantifiable ratings were part of the quality critique, but those ratings were discontinued in 1976-77 in an effort to reduce the paperwork burden on the schools.

On-site compliance reviews and quality reviews of elementary school programs. Monitor and review visits were conducted to review school-level program compliance and to assess the quality of program implementation. Monitor and review teams of at least two persons visited schools during the period from October 1, 1976, to May 4, 1977. The teams spent two days in each school that was receiving funds from more than one source and that had an average daily attendance (a.d.a.) over 175 and two days in each school that was receiving only ECE funds and that had an a.d.a. over 250. Visits to other schools were for one day only.

Monitor and review teams consisted of either a Department of Education employee or other experienced individual, who acted as the lead person, and a second team member, who was either an employee of the Department or other individual experienced in the monitor and review procedure. Personnel from offices of county superintendents of schools and school districts comprised more than a majority of the monitor and review team members.

Designing instruments and procedures to assess program quality both within and across thousands of schools statewide is a difficult task. The development of measuring instruments for these purposes involves new assumptions and methods. When used within schools, the monitor and review process is intended to provide systematic feedback to a school about its program planning, implementation, and evaluation. This feedback is designed to aid in future program development by encouraging ongoing planning, internal monitor and review, and process and product evaluation. Across schools the monitor and review process is designed to provide information regarding the quality of various aspects of school programs.

The two instruments used during the monitor and review visits were the School Level Program Compliance Review Instrument and the Program Quality Review Instrument. The compliance instrument was used at each school visited to determine areas in which a school's program was out of compliance with regulations. No overall data were compiled across schools on the extent of compliance. Thus, the findings from compliance reviews consist of the number of schools that received such reviews.

The Program Quality Review Instrument was redesigned for 1976-77. It included 49 items related to a school's funded program. The items were organized into three categories: (1) development and use of the school's program plan; (2) program implementation; and (3) ongoing program development. Forty-five of the items were applicable to programs in non-ECE grades and schools not receiving ECE funding. The rating scale on the quality instrument ranged from 0 (no evidence) to 5 (excellent). The ratings were averaged across schools to obtain the information on which the findings in Chapter V were based. Copies of both the School Level Program Compliance Review Instrument and the Program Quality Review Instrument are included in Appendix B.

Factor analyses were performed on the 1976-77 Program Quality Review Instrument information to enhance understanding of the qualities it appeared to measure. For grades with ECE funding, the strongest factor appeared to be an instructional factor pertaining to the development of the plan, diagnosis and prescription in language development, reading and mathematics, continuous prog-

ress in mathematics, balanced curriculum, and improvement of the learning environment.

The same type of factor analysis was performed on the items for grades without ECE funding. The strongest factor was an instructional/participation factor that included the relationship of the prescription to the diagnosis in mathematics; providing for students' individual needs through a variety of methods and materials; parent participation; parent education; staff development for teachers, aides, principal, and support staff; and ongoing planning in the area of the evaluation of information about the program.

The factor analyses of the Program Quality Review Instrument information for both groups indicated that the instructional items—diagnosis, prescription, materials, and continuous progress—continued to be the heart of the Program Quality Review Instrument. Support factors, such as staff development, health/auxiliary services, and parent participation, were a second focus; and the needs of limited- and non-English-speaking students were a third area of emphasis.

Secondary school on-site reviews. Secondary school programs were reviewed only for compliance with regulations. The data from the reviews consist of the number of schools that were reviewed.

Evaluation of the Monitor and Review Process

The Department of Education conducted an evaluation of the monitor and review process at both the elementary and secondary school levels. Questionnaires were sent to each school visited in 1976-77. A total of 657 questionnaires (53 percent) were returned by the elementary schools. A copy of the questionnaire and data obtained from it are included in Appendix C. The responses were generally favorable. Secondary schools returned 956 questionnaires. In general, the process was rated as satisfactory in the secondary schools. Elementary schools returned one survey form per school that represented a consensus of viewpoints; responses from individuals were returned from secondary schools, which accounts for the fact that the number of secondary school forms returned was larger than the number of schools visited. The survey form sent to elementary schools included an opportunity for schools to write "recommendations." The most frequent recommendations made about the monitor and review process were (1) take a longer time in schools/classrooms (20 percent); and (2) simplify the Program Quality Review Instrument (15 percent). A group of state and district personnel has revised the process for the 1977-78 school year.

Advantages and Limitations of the Monitor and Review Process

Both the advantages and the limitations of the monitor and review process stem in part from the several purposes that the process is designed to serve. The advantages of the on-site review process in providing feedback to schools about the strengths and weaknesses of their programs include the opportunity for persons from outside the school or district to provide a different perspective of the program. Another strength of the process is that it provides a relatively straightforward evaluation framework that, in fact, can be utilized by the school itself and can be adjusted, if necessary, to meet the particular conditions at a school. The on-site review process is clearly superior to questionnaires, surveys, or other documents for gathering information about program quality within and across schools. However, the very strengths of the process—the direct people-to-people involvement—limit to some extent the inferences that can be drawn from the data obtained. One should use caution in interpreting the data across schools.

One limitation of ratings of program quality obtained through the Program Quality Review Instrument is the interrater reliability of such data. Although every effort is made to ensure that two teams applying the instrument at different times at different schools are using the same standards or criteria when assigning numerical ratings, one cannot be sure that differences in ratings among schools are not a function of differing rater perceptions and standards rather than actual differences in program quality. The results of a study of interteam reliability conducted in 1975-76 and reported in *Evaluation Report of ECE, ESEA Title I, and EDY, 1975-76,* indicated that two teams visiting the same school at the same time tend to give very similar ratings to the school's program.

A second limitation of the monitor and review data is that no longitudinal comparison of program quality is possible. Both the Program Quality Review Instrument and the populations of the schools rated have changed from year to year, making it difficult to determine whether school program quality changes as a function of time or other circumstances.

A third limitation stems from the population of schools that receive monitor and review visits each year. The schools selected for visits are either new to the program or are those that were ranked low

in overall program quality the previous year. Thus, the group reviewed could not be considered representative of all schools participating in the programs, and the ratings of these "new" and "low" schools are not representative of the quality of programs across participating schools.

Indicators of Student Achievement

Student achievement data were derived from two sources: (1) California Assessment Program tests; and (2) publishers' norm-referenced tests.

California Assessment Program Data

Attention has shifted in the consolidated evaluation report to utilization of California Assessment Program schoolwide achievement scores. Two major advantages of these scores over the school-reported publishers' norm-referenced test scores are that (1) they are based on uniform tests administered throughout the state (the *Entry Level Test* for all grade one students and the *Reading Test* for all students in grades two and three); and (2) they are given only at the time of the year for which empirical norms are available. On the other hand, two disadvantages of the California Assessment Program tests are that (1) they are designed to yield only state-, district-, and school-level reading data and are not designed to provide data on subgroups of students within schools; and (2) the second and third grade test does not cover mathematics achievement.

Various analyses were conducted on the basis of data provided by the California Assessment Program. Analyses of trends in reading scores and an examination of the relationship between reading achievement and socioeconomic and demographic variables were conducted for ECE schools and for a matched group of non-ECE schools. This longitudinal analysis of reading achievement performance of students in ECE schools was based on data obtained by complex statistical analyses (multiple regression) of the performance of students in all elementary schools in California. The school served as the unit of analysis; and the regression variables included grade one *Entry Level Test* scores from the California Assessment Program, socioeconomic index, percent of bilingual students, and student mobility rate from the California Assessment Program survey. As a result of the analyses, it was possible to observe changes in reading test scores among ECE schools relative to changes in student populations and length of ECE participation. California Assessment Program scores are for use in only grades two, three, six, and twelve.

Publishers' Norm-Referenced Test Data

Student achievement data from publishers' norm-referenced tests were reported to the Department by districts. These tests measure a broad spectrum of skills within identified areas, such as reading or mathematics, but they are relatively insensitive to specific instructional program objectives. They are designed to reflect the achievement gains of individual students compared to a large population of students, but they are not specifically geared to the special needs of students in any target group. Consequently, the use of such tests tends to result in underestimates of the gains made by the student toward program objectives. The problem of measuring and comparing the progress of schools—each with its own unique set of objectives—was alleviated only partly by allowing schools to choose, for use in the evaluation, a particular norm-referenced test from a list of commercially developed standardized achievement tests.

Virtually all participating schools were required to administer publishers' norm-referenced tests in reading and mathematics on a pretest and post-test basis. Most schools pretested students in October and post-tested them the following May; some schools tested on an annual basis (May/May). The achievement tests that were used are listed, by frequency of use, in Appendix D. The frequency distribution of elapsed time between pretesting and post-testing for schools is shown in Appendix E.

Publishers' national norms for achievement test scores represent the achievement levels of typical students in the nation. A comparison of participating students' scores with publishers' national norms is useful in that it indicates how participating students are scoring relative to a national sample of students at the same grade level.

While test scores have often been expressed in grade equivalents, many technical shortcomings exist in the use of this particular type of derived score.[1] Given these shortcomings, the Department has analyzed student achievement using standard scores based on a national mean score of 50 and a standard deviation of 10. These standard scores

[1] A technical discussion of the shortcomings of grade equivalent scores can be found in D. Horst, G. K. Tallmadge, and C. Wood, *Measuring Achievement Gains in Educational Projects* (RMC Report UR-243). Los Altos, Calif.: RMC Corporation, October, 1974, pp. 8–10.

were computed from mean raw scores when in-level testing was conducted and from mean scale scores when out-of-level testing was used. The standard scores were computed as follows:

$$T = 50 + \left(\frac{X - \bar{X}}{SD}\right) 10$$

where T = standard score
X = school mean score
$\bar{X}$ = publisher's mean score
SD = publisher's standard deviation

Conversion of the data to standard scores facilitated interpretation of the findings in relation to national norms. Assume, for example, that students had an average pretest standard score of 48 and an average post-test standard score of 48. The students would have maintained their same position relative to the national norm group. In other words, the students would have made the same gain that the norm group made. To the extent that the post-test score was greater than the pretest score, the students could be considered to have gained more than the norm group.

In the computation of achievement gains, scores were used for only those students for whom both pretest and post-test scores were available. Test information that was either incomplete or based on procedural irregularities was not used in developing statewide averages. Examples of incomplete data and irregular procedures included instances in which (1) either pretest or post-test information was omitted; (2) test results were combined for several grade levels; (3) test scores were not reported in terms of either raw scores or scale scores; (4) tests without national norms were used; (5) the elapsed time between the pretest and post-test was less than five months; (6) no test results were reported; and (7) test scores of students who were not receiving services provided for by consolidated application funds were used in determining the mean raw score.

Advantages and Limitations of Student Achievement Data Sources

Certain technical limitations are common to the data sources employed in the analyses of student achievement gains. These include the use of tests not specific to program goals, the unavailability of test data from program participants only, problems in interpretation as a result of *estimated* rather than empirical norms, and the inappropriateness of certain evaluation designs.

The major advantages of school-reported publishers' norm-referenced test scores are that (1) they are based on tests that were chosen by districts to address unique district and school concerns; and (2) they are the only achievement scores available to assess the progress of students in grades not tested by the California Assessment Program. The important disadvantages of school-reported publishers' norm-referenced test scores are that (1) major differences exist among the available standardized tests in terms of what they measure and how they describe the progress of students from grade to grade; and (2) many of these tests have norms that may, because of the estimation procedure used in the calculation of the norms throughout the school year, present an overly optimistic picture of participating students' progress relative to that of the national norms. Despite these technical disadvantages, publishers' norm-referenced test scores are particularly important for district- and school-level evaluations and do provide useful information at the state level about the progress of students.

The most accurate norm scores for publishers' norm-referenced tests are those for the time of the year during which the publisher's original norming study was made. The norm scores for other times during a year are actually *estimates* obtained by interpolating across grade levels. In most cases the interpolated norms are underestimates of the actual growth in student achievement between the fall and spring of a year. As a consequence of this inaccuracy, there is a tendency for students taking the publishers' norm-referenced tests to *appear* to be progressing faster than the norm group between the fall and spring. Unfortunately, no fully satisfactory method exists for adjusting the publishers' norm-referenced test to allow for this influence.[2]

The determination of the mean weighted average standard scores for all participating students at each grade level required that certain conditions be imposed. First, matched scores were omitted for those students for whom the interval between the pretest and the post-test was less than five months. This practice resulted in the elimination of data for 5 percent of those students for whom pretest and post-test scores were available. The remaining data were aggregated regardless of testing interval.

An analysis was made of test score differences associated with annual testing (usually May to May) and within-year testing (usually October to May). For a majority (66 percent) of the students for whom test scores were reported, the interval

[2] A technical discussion of interpolated norms can be found in D. Horst, G. K. Tallmadge, and C. Wood, *Measuring Achievement Gains in Educational Projects* (RMC Report UR-243). Los Altos, Calif.: RMC Corporation, October, 1974.

between pretesting and post-testing was from 6.5 to 8.5 months (within-year testing). For 24 percent the interval was between 11.0 and 12.5 months (annual testing). Figure IV-1 shows the differences, not adjusted for unequal pretest means, in average standardized gain scores, by testing interval, for fluent-English-speaking students. Although they were consistent with the overall results, the data for grade one were omitted because not all schools that were testing on an annual basis pretested grade one students at the end of kindergarten. In addition, the increasingly smaller number of schools testing students in grades seven through twelve within the specified testing intervals suggests that one should exercise caution in interpreting differences. The general finding of greater gain scores for students tested within the school year than for those tested annually is consistent with other findings that suggest inflated gain estimates for this group of students.

The data in Figure IV-1 show that at all grade levels, fluent-English-speaking students who were tested within the school year made gains and that the greatest average standard score gain (4.1) was in grade three. The annual results indicate overall average declines in grades four, seven, and nine and gains at the other grade levels. Only in grade eight was more growth noted for students tested annually than for those tested within the school year. No plausible explanation can be offered for this occurrence. Neither is any explanation offered for the greater fluctuation across grade levels of gain scores from annual testing than of those from within-year testing. Heretofore, the annual testing pattern had been thought to yield a stable measure of growth in achievement.

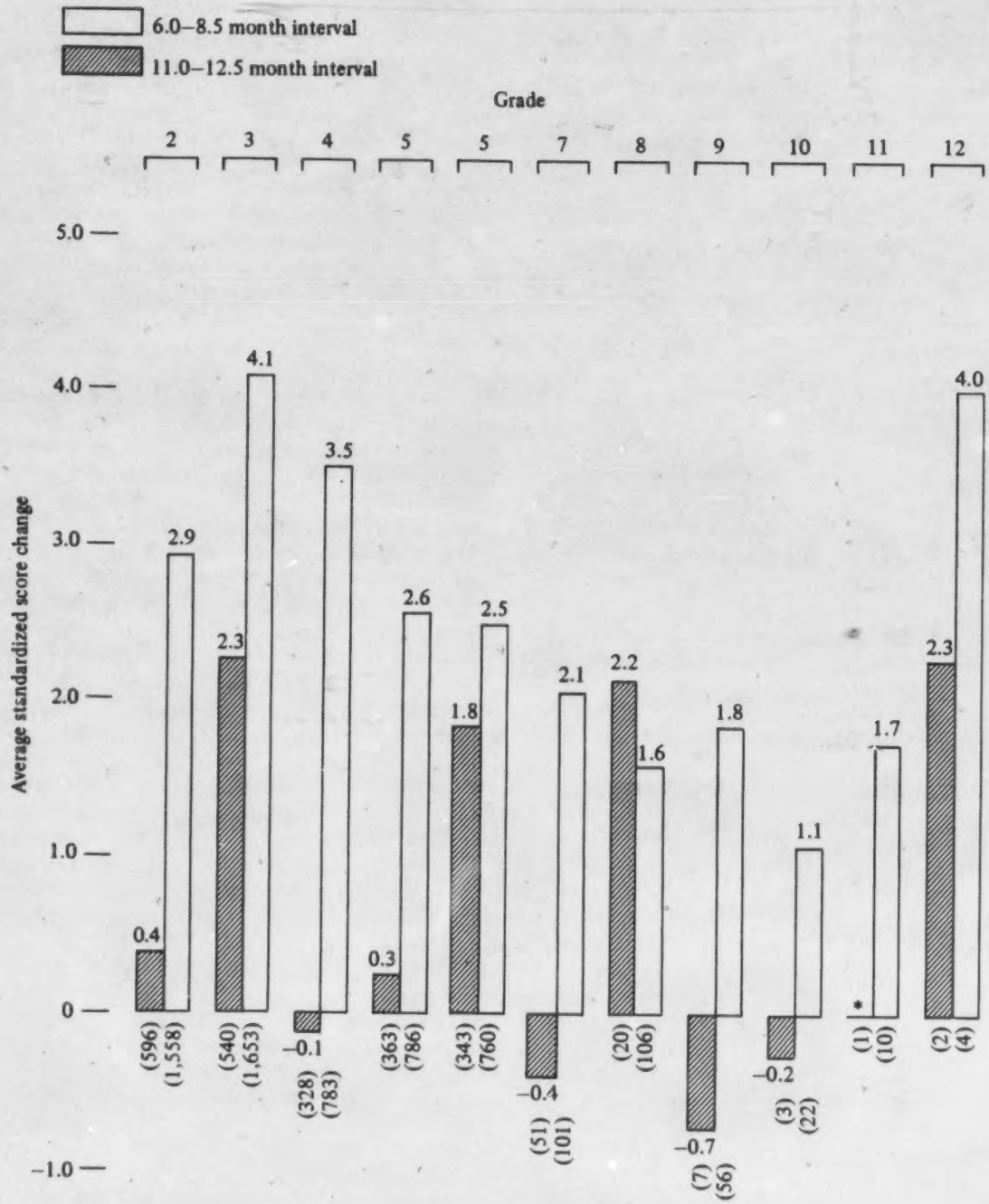
A principal question in interpreting the achievement of participating students is: How well did students perform compared to how they would have performed had they not participated in multiple-funded school programs? This question cannot be answered directly because districts, schools, and students are selected for participation in ECE, ESEA Title I, EDY, bilingual education, and Miller-Unruh programs in accordance with prescribed eligibility criteria. The effect of these selection procedures is that participating students differ from nonparticipants not only in terms of the criteria for eligibility that they meet but also in terms of other variables related to school background and student population characteristics. Consequently, evaluators have developed techniques that provide indirect evidence from which inferences can be made about program effects. In this evaluation report inferences have been made on the basis of two types of comparisons: (1) those between program participants and publishers' national norm groups; and (2) those among ECE schools and between ECE schools and non-ECE schools on the basis of California Assessment Program data.

The use of the same student achievement data for selection of participants and for assessment of student growth distorts the interpretation of student outcome data for two reasons. First, a phenomenon of statistical variation in test scores occurs when the same test is used to test the same students more than once. Second, those circumstances related to the selection of particular student participants may not be the circumstances addressed in the program; that is, student test performance may be a function of variables other than those addressed in the program. These latter variables may continue to affect students during their participation in the funded programs.

The procedures for allocating Title I and EDY funds to schools are different, but in the allocation of both types of funds, the same schools often are identified as eligible for funding. Schools may be eligible for Title I funds on the basis of the poverty of students' families and for EDY funds on the basis of low student achievement. When a district is distributing Title I and EDY funds, the decision as to which school receives which funds is often arbitrary. Thus, students in schools receiving only Title I funds are likely to be quite similar to those in schools receiving only EDY funds.

While fairly accurate generalizations can be made about funding patterns in schools within a single district, direct comparisons of funding patterns in schools from different districts are unjustified because of the nature of the selection process in each district. The school with the lowest achievement in one district may actually perform at a much higher level than the school with the lowest achievement in another district with different population characteristics. Nevertheless, when reading the section on school program characteristics and interpreting the findings in Chapter V, the reader should keep in mind those differences in school characteristics that are a function of funding source eligibility.

A significant limitation of this and other efforts to utilize achievement measures in the evaluation of program outcomes is that achievement data are a single and sometimes crude estimate of educational effect. Student achievement data represent academic outcomes only and leave unmeasured



*Insufficient data for computation

NOTE: Numbers in parentheses are the numbers of schools that reported test data.

Fig. IV-1. Changes in average standardized reading scores for fluent-English-speaking students for pretest to post-test intervals of 6.0–8.5 months and 11.0–12.5 months

other important educational outcomes, such as improvement in self-concept and personal and social growth.

In addition to the weakness of using a single indicator of educational outcomes, another mistake that is frequently made is the attribution of single effect outcomes, such as achievement gains, to particular "causes," such as program participation. The inappropriateness of establishing cause-effect relationships is a serious limitation on the interpretation of all student achievement data in this report.

In 1976, the State Board of Education asked the Educational Management and Evaluation Commission Evaluation Committee for counsel regarding the appropriateness of cross-program comparisons in educational evaluation, such as might be conducted if one were attempting to examine the relative merits of EDY programs versus bilingual education programs, versus ECE, for example. Five recognized evaluation experts were invited to prepare written comments on the issue.

The Commission considered the following major points. (1) A distinction is made between funding sources and programs. Funding sources in and of themselves do not define educational treatments and, consequently, do not have direct impact on children. The result is that when attempts are made to evaluate a particular educational program, it is impossible to relate the characteristics of the program to the specifications of the funding source. (2) The overlap and "interaction" of funding sources at many schools make it impossible to determine the effects of the particular sources. Funds are accounted for separately, but services are commingled, thereby, making it impossible to determine the impact of specific funding sources. (3) The dissimilarity of the student populations receiving services makes meaningful cross-program comparisons impossible. The commission subsequently submitted to the State Board a majority report in which the authors concluded that under current circumstances, meaningful cross-program comparisons of the major educational programs in California are not feasible.[3]

Studies of the Relationship Between Monitor and Review and California Assessment Program Data

The purpose of this section is to examine the relationships between the ratings that schools received on the Program Quality Review Instrument and the data obtained through the California Assessment Program. The limitations of each type of data must be considered, and the relationships or lack thereof between the data must be interpreted with great caution.

When California Assessment Program scores are used for program evaluation, the criterion used is the standardized residual scores (the difference between actual and predicted scores) based on grade three results on the 1976 *Reading Test.* School background factors are considered in the determination of these scores, and the scores are scaled so that a school's score (average score of the pupils in the school) can be compared with those of similar schools. One of these background factors, socioeconomic index, has a modest association ($r = 0.23$) with the Program Quality Review Instrument score. This may be a reflection of the ability of schools with high socioeconomic index ratings to provide better programs. No relationship is noted between California Assessment Program residual scores and the socioeconomic index. This is expected because the socioeconomic index was one of the background factors used in the score scaling.

As a follow-up to the 1975-76 correlation study between the Program Quality Review Instrument ratings and California Assessment Program scores, Pearson product moment correlations were determined between the actual, predicted, and residual reading scores from the California Assessment Program and items on the Program Quality Review Instrument. The Program Quality Review Instrument was analyzed by subsections to determine the relationship among reading achievement, the instructional factor on the instrument, and the four items that dealt specifically with aspects of the reading program. Table IV-1 shows the correlations for ECE schools.

In ECE schools almost no relationship was noted between the California Assessment Program data and the Program Quality Review Instrument data. Even when specific reading items from the Program Quality Review Instrument were correlated with reading achievement, the relationship was still weak, ranging from 0.02 to 0.12.

The fact that monitor and review scores have no correlation with test scores does not imply that if one is a measure of program quality, then the other is not. If two variables measure different aspects of a third variable, then the first two may have no correlation with each other but may have a significant correlation with the third variable. In

[3] "Considering the Possibility of Meaningful Cross-Program Comparisons." A position statement prepared by the Educational Management and Evaluation Commission Evaluation Committee and submitted to the State Board of Education on November 11, 1976.

TABLE IV-1

Correlations Between California Assessment Program (CAP) Third Grade Reading Scores and Program Quality Review Instrument (PQRI) Ratings for ECE Schools, 1976-77

	CAP actual score	CAP predicted score	Residual score (CAP)	Total score, PQRI
Total score, PQRI	–0.04	–0.01	–0.05	+1.00
Instructional factor, PQRI	–0.06	–0.04	–0.05	+0.90
PQRI minus instructional factor	+0.07	+0.05	+0.03	–0.43
*PQRI reading component**				
Diagnostic assessment	+0.10	+0.10	+0.02	+0.66
Relationship to diagnosis	+0.11	+0.07	+0.08	+0.52
Learning styles	+0.15	+0.12	+0.09	+0.72
Continuous progress	+0.12	+0.12	+0.04	+0.28

**PQRI reading component* refers to items 1, 2, 3, and 4 on pages 3 and 4 of the Program Quality Review Instrument.

this case, the Department is trying to assess "program quality." Thus, although monitor and review scores and *Reading Test* scores are measures of two entirely different aspects of program quality, the use of a combined measure of both monitor and review scores and *Reading Test* scores to describe program quality is appropriate.

Special Studies

Each year the Department of Education undertakes special studies in response to program or funding questions raised in previous evaluation activities. In the 1975-76 consolidated evaluation report, a decline was noted in student achievement residual scores among schools in the lowest 20 percent of the distribution of scores on the California Assessment Program *Entry Level Test.*[4]

A special case study was designed to investigate the unique relationships between student achievement and certain school characteristics at 16 ECE schools selected from this group. This study was a cooperative effort by Department staff from the Office of Program Evaluation and Research and from Elementary Education Program Management. Half of the schools had made gains in grade three reading achievement in the preceding two to three years, and half had experienced declines.

Case studies were prepared for each of the 16 schools by pairs of observers who spent four days observing in classrooms, interviewing school personnel, and reviewing documents in each school. The focus of the observers' visit was the "reconstruction" of events that could be related to changes in pupil achievement. The teams attempted to develop for each school the most plausible explanation for the changes in student achievement.

A companion study was conducted under contract to the Department by SRI International, Menlo Park, to identify classroom processes related to changing test scores among schools in the lowest 20 percent on the *Entry Level Test.* Trained observers recorded observations about materials, activities, the organization of groups, the number of teachers and aides involved in the instructional process, instructional strategies, and the behavior patterns in 45 classrooms in 14 schools. Half of the schools in the study were also included in the special case studies conducted by the Department of Education.

[4] A residual score is the difference between a predicted score and an actual score.

V. Findings

The findings reported in this chapter provide the basis for inferences about the extent of participation in funded programs, the allocations and expenditures in the funded programs, the quality of programs and services; and the achievement of students who received services through the various funding sources. Additional findings relevant to early childhood education schools and selected findings that are characteristic of local evaluation efforts are reported in chapters VI and VII, respectively.

The findings reported below include enumeration data on program participants, a comparison of background characteristics of participating and nonparticipating students, indicators of program quality, and student achievement data. Student achievement results are presented first for analyses based on California Assessment Program data and then for analyses based on publishers' norm-referenced test data. Information about schools engaged in restructuring (ECE schools), schools that addressed the special needs of identified students, and schools that received funds from multiple sources is included.

Enumeration Data on Participants

Enumeration data on students, parents, volunteers, school and district participants, and program expenditures are reported in this section. These data have been aggregated for all schools funded through the consolidated application. Student participation data are also reported on the basis of funding source.

Student Participants

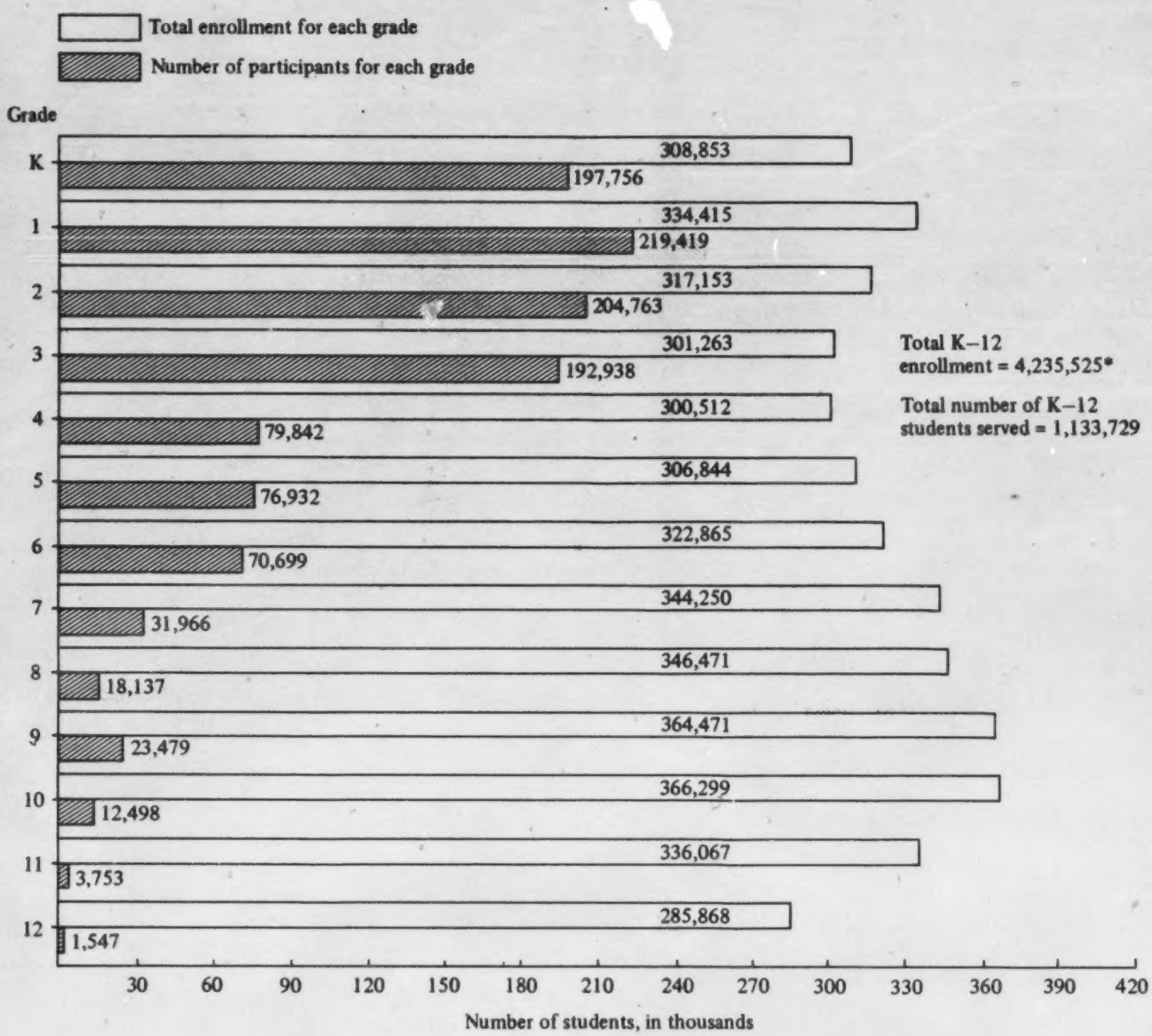
As shown in Figure V-1, a total of 1,133,729 students in kindergarten through grade twelve participated in school programs supported by ECE, ESEA Title I, EDY, bilingual education, and/or Miller-Unruh funds. This figure represents a 21 percent increase in student participants since 1975-76 and a 41 percent increase since 1974-75. Almost all of the increase in participation is accounted for by the expansion of ECE, in which the percent of K–3 students participating more than doubled from 1974-75 to 1976-77. Participating students represented 27 percent of the total kindergarten through grade twelve enrollment in California public schools. Of those students who were program participants, approximately 72 percent were enrolled in kindergarten through grade three, 20 percent were enrolled in grades four through six, and 8 percent were enrolled in grades seven through twelve. Of the program participants 13 percent were limited- or non-English-speaking students. The number and percent of program participants who were limited- or non-English speaking and the total number of participants for each funded program are displayed in Figure V-2.

Spanish was reported as the primary language of 15 percent of all student participants. Chinese, Pilipino, and Native American were reported as the primary language of 0.5, 0.4, and 0.3 percent, respectively. English was reported as the primary language of 82 percent of the student participants. Eleven other languages were represented by the remaining 1.8 percent of the student participants.

During 1976-77 approximately 1,070,000 students participated in the reading components, and 1,066,000 students participated in multicultural education components. The language development and mathematics components served 1,043,000 and 1,039,000 participants, respectively. Health and auxiliary services were provided for 982,200 students. Optional components, such as psychomotor development, music education, art education, and career development, were provided for 381,750 students. These numbers are duplicated counts; that is, participants in more than one program component were counted in each component.

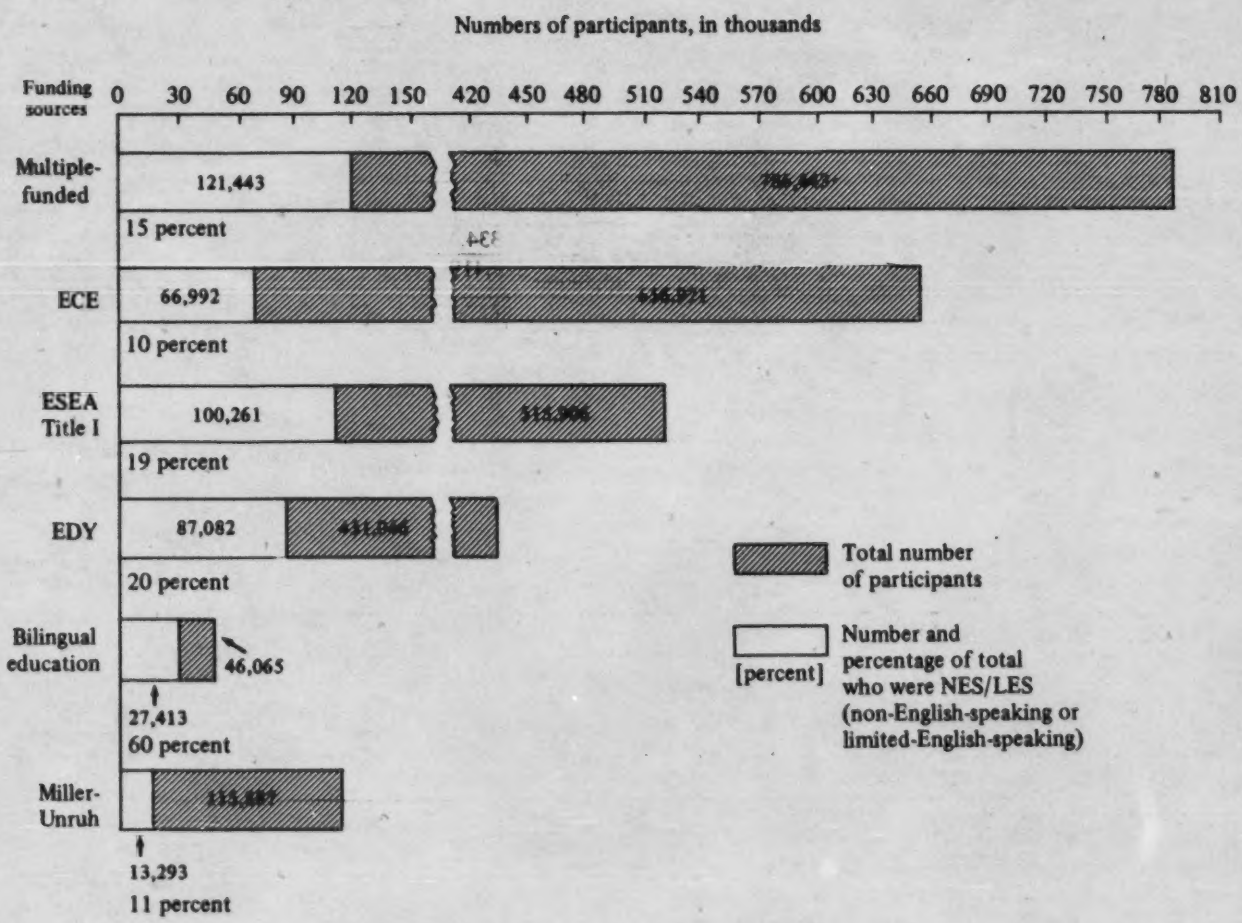
School and District Participants

In addition to participating in instructional activities, school and district personnel participated extensively in staff development activities.



*Source: *Active Enrollment in California Elementary and Secondary Public Schools* Sacramento: California State Department of Education, 1976.

Fig. V-1. Number of students enrolled statewide and number of student participants in programs supported by consolidated funding, by grade level, 1976-77



NOTE: These numbers represent duplicated counts. A student who received services provided for by ECE funds and by EDY funds, for example, would be counted for both funding source combinations.

Fig. V-2. Numbers of limited- and non-English-speaking students participating in ECE, EDY, ESEA Title I, bilingual education, and Miller-Unruh programs and percent each group was of the total program participants, 1976-77

Through the consolidated funding sources, a total of 100,100 personnel received some staff development training. The previous year 87,530 individuals were reported as having received staff development training.

Parent Participants

The participation of both parents and volunteers varied from month to month. During the sixth month of instruction, schools reported that 432,200 parents were involved in the parent participation and community involvement components. Parent education was provided for 292,700 adults, and 193,900 adults participated in the health and auxiliary services component. These counts were all duplicated counts.

Volunteer Participants

During the sixth month of instruction, a total of about 137,700 adult volunteers contributed 1,327,900 hours of assistance to the school programs. For the same period 90,300 cross-age volunteers assisted for 1,063,000 hours. Thus, a total of about 228,000 volunteers worked in the schools in 1976-77, as compared to a total of 81,000 volunteers in 1975-76.

Student Participants, by Funding Source

The following sections contain data on student participants, by funding source.

ECE participants. A total of 2,455 schools in 829 districts received ECE funds in 1976-77. These schools reported 656,500 student participants in ECE, compared to 426,700 in 1975-76. Of the participants 163,350 were in kindergarten, 173,700 were in grade one, 164,000 were in grade two, and 155,400 were in grade three. During the years 1973-74 through 1976-77, the percent of kindergarten through grade three students statewide who participated in ECE increased steadily. Table V-1 shows the percents of students in these grades statewide who participated in school programs funded by ECE for the past four years.

EDY participants. During the 1976-77 school year, 432,000 students, from preschool through grade twelve, participated in programs funded by EDY or by EDY in combination with other funding sources. Approximately 400,700 students participated in such programs in 1975-76. Of all students served, 53 percent were enrolled in kindergarten through grade three, 33 percent were enrolled in grades four through six, and 14 percent were enrolled in grades seven through twelve. The number of EDY participants, by grade level, is shown in Appendix F.

TABLE V-1

Percent of Students Statewide Participating in ECE Programs, 1973-74 Through 1976-77

Grade level	Percent of ECE enrollment, by school year			
	1973-74	1974-75	1975-76	1976-77
Kindergarten	17.2	25.3	34.4	52.9
One	16.6	25.5	33.9	51.9
Two	11.4	23.9	33.6	51.7
Three	9.9	23.1	33.6	51.6
Total enrollment	13.8	24.5	34.0	52.0

ESEA Title I participants. During the 1976-77 school year, 529,400 students from preschool through grade twelve participated in ESEA Title I programs. During the previous year 529,800 students participated in such programs. Of the total number of students who received services, 515,400 were enrolled in public schools. Detailed enrollment data are presented in Appendix G. Consistent with state regulations, the greatest concentration of participants was in the primary grades, where 55 percent of the participants were served in kindergarten through grade three. Table V-2 shows the percents, by grade level, of students in California who received ESEA Title I services from 1967-68 through 1976-77.

Participation data on special compensatory education programs funded under ESEA Title I, such as programs for handicapped students and for neglected and delinquent youth, are provided elsewhere in this chapter along with findings about those programs.

Bilingual education participants. The total number of students who participated in state bilingual education programs funded through the consolidated application was 46,000. The figure for 1975-76 was 49,000. Of the students who participated in bilingual education programs, 60 percent were classified as limited-English speaking or non-English speaking.[1] The number of participants, by grade level and by level of English fluency, is shown in Table V-3.

Miller-Unruh participants. Participation figures for Miller-Unruh were estimates derived from

[1]Students were classified as limited- or non-English speaking on the basis of district language fluency surveys conducted in the fall of 1976.

TABLE V-2

Percent of Students Receiving ESEA Title I Services in California, by Grade Level Groups, 1967-68 Through 1976-77

Grade level	Percent of total ESEA Title I enrollment, by school year									
	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
Kindergarten through grade three	40.4	41.8	50.4	52.1	51.9	54.0	56.5	54.3	53.4	54.6
Grades four through six	22.8	23.7	33.0	33.9	34.7	35.3	30.3	34.0	33.8	32.6
Grades seven through nine	19.9	20.7	8.9	9.1	8.2	6.6	8.4	8.3	9.4	9.5
Grades ten through twelve	12.4	10.9	4.0	3.6	3.3	2.7	3.7	2.6	2.9	2.8

NOTE: Figures for participants in preschool and ungraded programs are not included in this table; therefore, the values in the respective columns do not total 100 percent.

TABLE V-3

Number of Students, by Grade and Language Facility, in State Bilingual Education Programs, 1976-77

Language facility	Grade													
	K	1	2	3	4	5	6	7	8	9	10	11	12	Total
Non-English speaking	3,799	2,066	924	752	372	305	237	590	401	511	248	131	66	10,413
Limited-English speaking	2,480	3,372	2,710	2,013	1,165	1,066	871	968	868	944	617	440	237	17,801
Other	3,594	3,218	2,803	2,628	1,488	1,391	1,100	407	344	352	208	135	194	17,851
Total	9,873	8,656	6,437	5,393	3,025	2,762	2,208	1,965	1,613	1,857	1,073	706	497	46,065

reported participation. The estimated number of students served was 135,660, compared to an estimated 154,000 students in 1975-76. New legislation in 1976-77 permitted students in grades four through six to receive services. About 0.3 percent of the students who received Miller-Unruh services were in grades four through six.

Special Analysis of Background Characteristics of Student Participants

A sample of California Assessment Program pupil information sheets was examined to determine the background characteristics of students who participated in programs that received ECE, EDY, ESEA Title I, bilingual education, and/or Miller-Unruh funds. These data, which illustrate some of the differences in the background characteristics of participating and nonparticipating students, are displayed in Table V-4.

The occupation of the principal breadwinner in a student's family is an estimate of the socioeconomic status of the family. Teachers indicated what they knew or believed to be the occupation of the principal breadwinner in each student's family. A smaller percent of the participating students than nonparticipating students came from homes in which the principal breadwinner was a professional or semiprofessional, and a larger percent of participants than nonparticipants came from homes in which the breadwinner's occupation was classified as unskilled or was unknown.

For the purposes of the California Assessment Program, English-language fluency is determined on the basis of the judgment of each student's teacher about the student's language background and skill.[2] Most student participants and non-

[2]The California Assessment Program determination of English language fluency was not designed to identify the English-speaking ability of individual students. As a result of AB 1329 (1976), a home language survey is conducted each fall to determine the English fluency of all students enrolled in California public schools, in kindergarten through grade twelve.

TABLE V-4

Pupil Background Characteristics of Participants and Nonparticipants, from a 2 Percent Sample of 1976-77 California Assessment Program Third Grade Pupil Information

Background characteristics	Percent of participants (Number of students = 3,552)	Percent of nonparticipants (Number of students = 1,944)
Occupation of principal breadwinner		
Executives, professionals, managers	13.6	22.5
Semiprofessionals, clerical and sales workers, technicians	19.6	27.1
Skilled and semiskilled employees	38.3	36.1
Unskilled employees (and welfare)	21.7	9.9
Unknown	6.8	4.4
	100.0	100.0
English-language fluency		
English only	75.3	87.7
English and another language	16.2	9.8
Limited-English speaking	8.5	2.5
	100.0	100.0
Mobility/transiency		
Enrolled since the previous year	94.4	95.3
Enrolled in the year of the test	5.6	4.7
	100.0	100.0

participants in the sample spoke English only. A greater percent of participating students (16.2 percent) than nonparticipating students (9.8 percent) spoke English and another language. The percent of participants who were limited-English speaking was much larger (8.5 percent compared to 2.5 percent) than the percent of nonparticipants who were limited-English speaking. The reader should also note that students who do not speak English (non-English speaking students) do not take the California Assessment Program reading achievement test and therefore were not included in this sample. The mobility or transiency of participants was slightly higher than that of nonparticipants. Of the students included in the sample, 5.6 percent of the participants were enrolled in the school for the first time in the year in which the test was given (1976-77); 4.7 percent of the nonparticipants were enrolled in the school for the first time in the year in which the test was given. The differences between participating and nonparticipating students indicated that the usual statistical criteria for making comparisons between two groups were not met, and thus comparisons were not justifiable.

Allocations and Expenditures

The total allocations for the past three years for school progams supported by ECE, EDY, ESEA Title I, bilingual education, and Miller-Unruh funds are shown in Table V-5. In the 1976-77 school year, 57 percent of participating schools received funds from two or more sources.

Districts are required to file complete financial reports regarding funds received through the consolidated application. The data in Table V-6 are from a random sample of preliminary financial reports filed by districts. Table V-6 shows the percents of total expenditures in seven budget categories in the districts whose reports were included in the sample.

Examples of the types of classified personnel for whom funds were expended include classroom instructional aides, clerical support, and community aides. Resource teachers, reading or other curriculum specialists, nurses, counselors, psychologists, librarians, and program directors are examples of the kinds of certificated personnel for whom funds were expended.

Expenditure patterns for each funding source over the past three years are discussed in the following section. Because the patterns are based on samples of preliminary reports and because they may reflect school level choices about which source to use to provide specific program services, the reader is advised to use caution in making interpretations. For all funding sources, expenditures must be made to provide services that supplement, not supplant, those of the basic programs.

Early Childhood Education

Chapter 1147, Statutes of 1972, provided for an appropriation of $25 million in 1973-74 and $40 million in 1974-75 for ECE. Since 1974-75 ECE has been expanded annually through funds provided in the state budget. As is shown in Table V-7,

TABLE V-5

Allocations of ECE, EDY, ESEA Title I, Bilingual Education, and Miller-Unruh Funds, 1976-77

Types of funds	1974-75	1975-76	1976-77
Federal funds			
ESEA Title I*	$132,577,018	$130,000,000	$136,827,640
State funds			
ECE	41,000,000	61,894,358	97,405,224
EDY	84,000,000	90,389,376	97,411,666
Bilingual education (AB 2284)	3,836,000	8,139,000	8,091,137
Miller-Unruh	15,349,625	13,849,625	13,849,625
Total	$276,762,643	$304,272,359	$353,585,292

*These figures do not include ESEA Title I Handicapped, Neglected and Delinquent, or Migrant funds.

the 1976-77 state budget provided for $97.45 million for the support of ECE. These funds made possible the extension of ECE to approximately 52 percent of California's student population in kindergarten through grade three. Table V-7 also reflects the expansion of ECE from school year 1974-75 through school year 1976-77.

Table V-8 shows the pattern of expenditures of ECE funds over the past three years. The percents expended in the budget categories shown remained basically stable over the three-year period. The data show that schools expended the largest percent of their allocations on salaries for classified personnel; the second largest percent of expenditures was for salaries for certificated personnel. Less than 30 percent of the total ECE expenditures were for employee benefits; books, supplies, and equipment replacement; contracted services; capital outlay; and indirect costs.

TABLE V-6

Budget Categories of Consolidated Application Funds, by Percent of Expenditures, from Random Samples of Preliminary District Financial Reports, 1976-77

Expenditure category	Percent of total expenditure
Classified salaries	54
Certificated salaries	22
Employee benefits	14
Books, supplies, and equipment replacement	6
Capital outlay	1
Contracted services	2
Indirect costs	1
Total	100

Educationally Disadvantaged Youth

Table V-9 shows the number of students served by EDY and the funds appropriated from 1974-75 through 1976-77.

The data in Table V-10 show that the EDY expenditure pattern in 1976-77 differed from the expenditure patterns in the two previous years. Salary expenditures in 1976-77 were equally divided between classified and certificated personnel salaries. A second random sample of district reports yielded a similar pattern of expenditures. The Department is currently examining possible reasons for the changes from previous years' expenditure patterns.

ESEA Title I

Table V-11 displays the number of students served by ESEA Title I and the funds appropriated from 1974-75 through 1976-77.

TABLE V-7

Number of Students Served by ECE and Funds Appropriated, 1974-75 Through 1976-77

Year	Number of K-3 students served	Percent of K-3 students statewide	Funds appropriated
1974-75	303,100	24.5	$40,000,000
1975-76	426,700	34.0	63,200,000
1976-77	656,500	52.0	97,450,000

TABLE V-8

Budget Categories of ECE Funds, by Percent of Expenditures, from Random Samples of District Reports, 1974-75 Through 1976-77

Expenditure category	Percent of total expenditure		
	1974-75	1975-76	1976-77
Classified salaries	55	45	57
Certificated salaries	20	28	21
Employee benefits	11	9	8
Books, supplies, and equipment replacement	8	9	9
Capital outlay	3	2	1
Contracted services	2	5	3
Indirect costs	1	2	1
Total	100	100	100

The data in Table V-12 show no substantial differences in the percents of expenditures, by budget category, over the three school years. The percent of Title I funds expended for classified personnel was lower than the percent of ECE funds expended for such personnel. In all three years approximately 90 percent of the total allocations

were expended for staff salaries and employee benefits.

Bilingual Education

Table V-13 shows the numbers of students served in bilingual education programs and the funds appropriated from 1975-76 through 1976-77.

Comparative data on expenditure patterns for bilingual education were available for the past two years only. Table V-14 shows the similarity of these patterns. The greatest percent of funds was spent for classified salaries. The percent of expenditures for books, supplies, and equipment replacement was three to four times that in ECE, ESEA, or EDY.

Monies appropriated under the Bilingual Education Act of 1972 can be used to employ bilingual teacher aides, purchase special bilingual materials and special equipment, provide inservice training and staff development, and cover reasonable expenses of the school's parent advisory group. These expenditure restrictions accounted for the differences between the expenditure patterns for bilingual education funds and the expenditure patterns for the other consolidated application funds.

TABLE V-9

Number of Students Served by EDY and Funds Appropriated, 1974-75 Through 1976-77

Year	Number of students served (all grade levels)	Funds appropriated
1974-75	389,500*	$83,754,000
1975-76	400,700	90,389,376
1976-77	432,000	97,480,000

*In the *Evaluation Report of ECE, ESEA Title I, and EDY, 1974-75*, the number of EDY participants reported (436,000) represented a count of all students in schools that received EDY funds. For fiscal years 1975-76 and 1976-77, the summary counts reflect the actual number of students who participated in EDY programs. So that the figures shown are comparable, the number of students served by EDY in fiscal year 1974-75 has been restated to reflect the actual number of students who participated in EDY programs.

TABLE V-10

Budget Categories of EDY Funds, by Percent of Expenditures, from Random Samples of District Reports, 1974-75 Through 1976-77

Expenditure category	Percent of total expenditure		
	1974-75	1975-76	1976-77
Classified salaries	10.0	17.0	39.0
Certificated salaries	71.0	62.0	39.0
Employee benefits	11.0	12.0	11.0
Books, supplies, and equipment replacement	4.0	4.0	7.0
Capital outlay	1.0	0.5	1.0
Contracted servives	2.0	4.0	2.0
Indirect costs	1.0	0.5	1.0
Total	100.0	100.0	100.0

Miller-Unruh

In 1976-77 a total of $13,849,625 in Miller-Unruh funds was appropriated to provide for reading specialists. This amount provided for about 1,260 reading specialists who worked with an estimated 135,660 pupils with reading needs.

Since Miller-Unruh funds can be used only for salaries for reading specialists, no further breakdown of expenditures is possible.

School Plan Review Data and Program Quality Review Data

Findings related to school plan reviews and on-site program quality reviews are presented below.

School Plan Reviews

A total of 3,284 elementary school plans were submitted to the Department in 1976-77. Of these, 1,013 were updates of existing plans, and 2,271 were from schools that were submitting a consolidated application for the first time (798 schools) or continuing ECE schools that were required to submit rewritten program plans as a result of low overall ratings in 1975-76. Field personnel, under the direction of Department personnel, conducted detailed quality critiques of the new or fully rewritten plans. All other plans were reviewed for compliance with applicable legal requirements.

For the 1976-77 school year, 467 secondary school plans were received and read. The plans were for EDY, bilingual education, and ESEA Title I programs, including programs for neglected and delinquent children in high schools and state institutions, such as California Youth Authority centers and state schools for the handicapped.

On-Site Program Quality Reviews

For 1976-77, program quality review ratings were available for 1,340 elementary schools. Of these schools 720 had entered ECE in 1975-76, 416 had entered ECE in either 1973-74 or 1974-75, and 204 were receiving only ESEA Title I and/or EDY funding. Table V-15 shows average program quality review scores for elementary schools.

The average scores across all schools reviewed were considered "good" on the basis of the Program Quality Review Instrument scale (0 = no evidence; 5 = excellent). The range of scores was smaller in 1976-77 than in 1975-76, and the average score was slightly higher. Statistics for the relationships among the three sections of the Program Quality Review Instrument for elementary schools are given in Appendix H.

TABLE V-11

Number of Students Served by ESEA Title I and Funds Appropriated, 1974-75 Through 1976-77

Year	Number of students served (all grade levels)	Funds appropriated*
1974-75	503,400**	$132,577,018
1975-76	529,800	130,039,420
1976-77	530,000	136,827,640

*All figures in this column represent amounts appropriated to local educational agencies (LEAs). These amounts do not include funds allocated for migrant education, handicapped children, neglected and delinquent children, or other purposes because the counts of participants are limited to students receiving funds granted to LEAs.

**In the *Evaluation Report of ECE, ESEA Title I, and EDY, 1974-75*, the number of Title I participants reported (591,561) represented a count of all students in schools that received Title I funds. For fiscal years 1975-76 and 1976-77, the summary counts reflect the actual number of students who participated in Title I programs. So that the figures shown are comparable, the number of students served by Title I in fiscal year 1974-75 has been restated to reflect the actual number of students who participated in Title I programs.

TABLE V-12

Budget Categories of ESEA Title I Funds, by Percent of Expenditures, from Random Samples of District Reports, 1974-75 Through 1976-77

Expenditure category	Percent of total expenditure		
	1974-75	1975-76	1976-77
Classified salaries	43.0	41.0	43.0
Certificated salaries	33.0	38.0	30.0
Employee benefits	14.0	13.0	13.0
Books, supplies, and equipment replacement	5.0	5.0	8.0
Capital outlay	0.5	1.0	1.0
Contracted services	4.0	1.0	4.0
Indirect costs	0.5	1.0	1.0
Total	100.0	100.0	100.0

On-Site Compliance Reviews of Secondary School Programs

Monitor and review teams conducted on-site compliance reviews at approximately 80 percent of the secondary schools that received consolidated application funds in 1976-77. In general, funded schools are to be monitored at least once every two years. However, schools that are judged to be substantially "out of compliance" are scheduled for a follow-up visit within a year after they receive a noncompliance rating.

Follow-up monitor and review visits were conducted in 82 school districts, 164 Title I/EDY schools, 50 institutions for neglected and delinquent youth, and seven nonpublic schools. Another 67 schools were visited for purposes of reviewing their bilingual education programs.

California Assessment Program Reading Achievement Data

Average school reading achievement scores from the California Assessment Program were used to examine the progress of students in schools receiving ECE funds. Since all students in a school in grades two and three take the California Assessment Program *Reading Test* and ECE funds are used to provide services to all students in kindergarten through third grade, the California Assessment Program scores can suitably be used for such a purpose. Grade three scores are used primarily, as they reflect the performance of students who have completed their period of participation in ECE. Of course, some students will have participated for one year in ECE, some for two years, some for three years, and some for four years (some whose schools entered ECE in 1973-74 will have participated since kindergarten). Second grade reading scores and gain scores from second to third grade provide additional information about the per-

formance of students in ECE schools. No single analysis can provide a complete picture of student achievement patterns in ECE schools. Accordingly, the Department analyzed California Assessment Program reading achievement scores from several different perspectives, starting from the very simple and moving progressively to the more complex. The following analyses are presented:

- Historical profiles of grade two and grade three reading achievement from 1972-73 through 1976-77 for ECE schools, by year of entry into ECE, as well as for non-ECE schools
- Longitudinal reading achievement profiles of school scores from grade two to grade three for ECE schools, by year of entry into ECE, and for a similar group of non-ECE schools
- Changes in residual reading achievement scores of grade three students in ECE schools, by years of participation in ECE[3]

The reader should note that all tables present school residual scores in terms of "weighted averages." Weighting is a statistical technique used to take school size into account in computing average scores for groups of schools. For example, if student scores for two schools were being averaged and School A had 150 students tested and School B had 200 students tested, the average scores from School B would be weighted more heavily than those from School A to allow for the larger number of students tested. Thus, weighted averages for large groups of schools portray better the average performance of *students* within those schools and do not portray as well the performance of the average *school* within the group.

Historical Profiles of Grade Two and Grade Three Reading Achievement in ECE Schools, 1972-73 Through 1976-77

The first analysis of California Assessment Program reading achievement data represents a simple approach to assessing the relationship of ECE to grade two and grade three reading achievement. This historical approach shows how students in ECE schools performed over the last five years, before ECE was implemented and in each year as additional schools were phased into ECE. Separate historical profiles are presented for all schools within each of the four phases of ECE, on the basis of year of entry, and for schools not receiving ECE funds. Grade three scores are shown in Table V-16, and grade two scores are shown in Table V-17. In both tables 1976-77 scores represent the percent of questions that students answered correctly on the California Assessment Program *Reading Test*. Scores for the other four years were also taken from statewide testing, but they were adjusted so that they are as nearly comparable to the 1976-77 scores as possible. Obviously, the scores could not be made completely comparable because different tests were given during the period. Statewide

[3]A residual achievement score is defined as the difference between a school's actual score (average score of its students) and its predicted score. A positive change in residual score indicated improvement relative to prediction on the basis of the background characteristics of the student population. Negative changes in residuals indicated a decline in this relative performance.

TABLE V-13

Number of Students Served by Bilingual Education Funds and Funds Appropriated, 1975-76 and 1976-77

Year	Number of students served	Funds appropriated
1975-76	49,100*	$8,000,000
1976-77	46,000**	8,100,000

*Estimate from 1975-76 Form E-127P data. Of the students served 26,833 were classified as limited-English speaking or non-English speaking.

**Unaudited estimate from 1976-77 Form E-127P data. Of the students served 28,214 were classified as limited-English speaking or non-English speaking.

TABLE V-14

Budget Categories of Bilingual Education Funds, by Percent of Expenditures, from Random Samples of District Reports, 1975-76 and 1976-77

Expenditure categories	Percent of total expenditure	
	1975-76	1976-77
Classified salaries	54.0	62.0
Certificated salaries	3.0	2.0
Employee benefits	12.0	15.0
Books, supplies, and equipment replacement	21.0	15.0
Capital outlay*	0.5	1.0
Contracted services	9.0	5.0
Indirect costs**	0.5	–
Total	100.0	100.0

*Special equipment used exclusively in bilingual education programs.

**Expenditures in this category are not permitted by law, and districts are billed for such expenditures.

testing used the *Cooperative Primary Reading Test (Coop)* in 1972-73, the *CAP I* in 1973-74, and a revised version of the *CAP I*, called *CAP II*, in the three subsequent years. The unshaded areas on the tables indicate scores obtained by schools during the years of their participation in ECE.

At least three important inferences can be drawn from the grade three data in Table V-16. First, students in ECE schools in the aggregate had a history of low achievement prior to the time that the schools entered ECE. In each year the achievement scores of students in the schools that were selected to enter ECE were lower than those of students in schools not selected for ECE. The 1972-73 statewide testing scores demonstrate this quite clearly. As a group the schools that were selected as ECE Phase I schools had the lowest achievement scores. These ECE Phase I schools were followed in order of lowest to highest 1972-73 *Coop* scores by ECE Phase II schools, ECE Phase III schools, ECE Phase IV schools, and non-ECE schools.

Second, with one marked exception, grade three reading achievement scores for students in both ECE and non-ECE schools were virtually unchanged over the five-year period. The exception was in ECE Phase II schools, in which the percent of questions answered correctly increased 1.2 percent from 1972-73 to 1976-77. Students in ECE Phase II schools correctly answered 79.9 percent of the items on the *Coop* test in 1972-73; four years later the students in those same schools answered 81.1 percent of the items correctly on the California Assessment Program *Reading Test*. The scores of students in Phase II schools were higher in 1976-77 than those of students in the other types of ECE schools.

Third, a very slight improvement in scores was noted in ECE schools overall. In particular, grade three reading achievement scores in schools that entered ECE four years ago (Phase I schools) declined during the schools' first year in ECE. The scores improved in the schools' second, third, and fourth years in ECE; and by the fourth year they were slightly higher than they had been before the schools entered ECE. The reading achievement scores in Phase III schools and Phase IV schools, which entered ECE in 1975-76 and 1976-77, respectively, improved slightly in their first year of participation. Achievement scores in ECE Phase III schools decreased in the schools' second year (1976-77) of participation. By contrast, grade three reading achievement scores in non-ECE schools declined slightly over the five-year period.

Table V-17 presents grade two reading achievement scores. At least three important inferences can be drawn from the data in Table V-17. First, they show that before ECE schools entered ECE, their students scored lower on grade two reading achievement tests than students in non-ECE schools scored.

Second, the grade two scores fluctuated more than the grade three scores did over the five-year period.

Third, grade two scores in ECE schools declined slightly during the schools' first year of participation in ECE but tended to improve in subsequent years. In particular, the schools that entered ECE in 1973-74 (Phase I) experienced a drop in grade two reading achievement; however, these schools have shown some improvement since that year.

The scores in Phase II schools, which entered ECE in 1974-75, declined during the schools' first

TABLE V-15

Descriptive Statistics for the 1976-77 Monitor and Review Data for the 49 Items Used for the Grades with ECE Funding and the 45 Items Used for Grades Without ECE Funding

Grades	Section I: Development and use of the plan		Section II: Program implementation		Section III: Ongoing program development		Total	
	Number of items	Item mean	Number of items	Item mean	Number of items	Item mean	Number of items	Item mean
Grades with ECE funding	6	3.9	39	3.7	4	3.6	49	3.7
Grades without ECE funding	5	3.6	36	3.4	4	3.3	45	3.4

TABLE V-16

Grade Three CAP Reading Achievement Scores for the Years 1972-73 Through 1976-77 for Non-ECE Schools and by Years of Participation for ECE Schools

Type of school / Test*	1972-73 *Coop*	1973-74 *CAP I*	1974-75 *CAP II*	1975-76 *CAP II*	1976-77 *CAP II*
ECE Phase I schools (Entered ECE in 1973-74, N = 393)	77.3	77.1	77.2	77.3	77.4
ECE Phase II schools (Entered ECE in 1974-75, N = 624)	79.9	80.0	80.4	80.4	81.1
ECE Phase III schools (Entered ECE in 1975-76, N = 454)	80.3	80.2	79.9	80.1	79.8
ECE Phase IV schools (Entered ECE in 1976-77, N = 694)	81.3	81.5	81.1	80.9	81.0
Non-ECE Schools (N = 1,992)	82.9	82.9	83.0	83.2	82.8

**Coop* and *CAP I* were predecessors of *CAP II*.

TABLE V-17

Grade Two CAP Reading Achievement Scores for the Years 1972-73 Through 1976-77 for Non-ECE Schools and by Years of Participation for ECE Schools

Type of school / Test*	1972-73 *Coop*	1973-74 *CAP I*	1974-75 *CAP II*	1975-76 *CAP II*	1976-77 *CAP II*
ECE Phase I schools (Entered ECE in 1973-74, N = 393)	64.4	63.1	63.3	63.1	64.0
ECE Phase II schools (Entered ECE in 1974-75, N = 624)	66.1	66.6	66.4	67.0	67.5
ECE Phase III schools (Entered ECE in 1975-76, N = 454)	67.3	67.2	66.6	66.0	66.6
ECE Phase IV schools (Entered ECE in 1976-77, N = 694)	68.5	68.4	68.3	68.1	67.3
Non-ECE schools (N = 1,992)	70.0	70.3	70.5	70.6	70.4

**Coop* and *CAP I* were predecessors of *CAP II*.

year in ECE but improved during the second and third years to a point well beyond the pre-ECE level. The Phase III schools, which entered ECE in 1975-76, experienced a decline in the first year but made gains back to the pre-ECE level in the second year. The scores in Phase IV schools, which were declining prior to the schools' entering ECE, declined further in 1976-77.

Examined together, tables V-16 and V-17 show an interesting pattern of reading achievement in ECE schools from 1972-73 through 1976-77. In ECE schools grade two reading achievement scores have consistently decreased in the first year of ECE participation but have increased in subsequent years. Thus, in 1976-77 ECE grade two reading achievement scores were higher than those in 1975-76, with the exception of Phase IV schools, which entered ECE in 1976-77. By contrast, grade three reading achievement scores of students in ECE schools have shown less fluctuation, with a slight increase in Phase I schools and Phase IV schools, a slight decrease in Phase III schools, and a substantial increase in Phase II schools.

The above description of student achievement performance must be qualified, however, because the schools in the four phases of ECE and the non-ECE schools differ from one another in terms of a variety of student background characteristics. Since differences in background characteristics can have a profound impact on student achievement scores, the next two analyses provide an opportunity to reexamine student achievement scores after the scores have been statistically adjusted for background factors; that is, they allow for "control" of background factors. The reader should note, however, that the adjustments result in a certain amount of statistical abstraction in program comparisons. The focus of the comparisons is no longer simply on test scores; it is on scores as they appear after adjustments for background factors have been made.

Longitudinal Comparison of ECE Schools and a Similar Group of Non-ECE Schools

For a longitudinal comparison of ECE schools with non-ECE schools, all schools were grouped on the basis of predicted grade three reading achievement and additional background factors; and mean achievement scores were computed in accordance with an accepted statistical procedure for calculating weighted averages.

Longitudinal profiles of the four phases of ECE schools and of the group of non-ECE schools are presented in Table V-18. The profiles are longi-

TABLE V-18

Reading Achievement Gain Scores for Groups of ECE Schools and Non-ECE Schools, 1975-76 and 1976-77, from California Assessment Program

Type of school	Grade two scores 1975-76	Grade three scores 1976-77	Gain scores (number correct, 1976-77, less number correct, 1975-76)
Phase I schools (Four years in ECE) N=393	62.5	76.5	14.0
Phase II schools (Three years in ECE) N=624	67.0	81.9	14.9
Phase III schools (Two years in ECE) N=454	65.3	79.9	14.6
Phase IV schools (One year in ECE) N=694	70.3*	85.0	14.7
Non-ECE schools N=1,992	68.6	81.9	13.3

*Grade two score is prior to entry into ECE.

tudinal in the sense that they trace the change in average school scores from grade two to grade three over the span of one year. The first column in Table V-18 shows California Assessment Program reading achievement scores for grade two students in 1975-76. The second column shows the scores of grade three students in the same group of schools on the identical reading achievement test in 1976-77. The third column shows how much progress was made from grade two to grade three.

The longitudinal gain scores of students in the ECE schools for each of the four phases were larger than those of students in the non-ECE schools, which indicates that greater gains were made in the ECE schools than were made in the non-ECE schools. Several inferences can be drawn from the figures in Table V-18. Students in ECE schools—with the exception of students in ECE Phase IV schools—had lower grade two reading achievement scores in 1975-76 than students in a similar group of non-ECE schools had. When grade three students in the same schools were tested the next year (1976-77), those in ECE Phase I schools and Phase III schools continued to score lower than did those in the similar group of non-ECE schools. Those in ECE Phase II schools and Phase IV schools scored as high as, and higher, than those in the similar group of non-ECE schools.

Changes in Standardized Residual Reading Achievement Scores of Grade Three Students in ECE Schools

Standardized residuals are a way of reporting test scores so that the achievement of students in a school can be measured against a relative standard. The relative standard is established by a statistical procedure called multiple linear regression, in which a predicted score for each school is computed on the basis of several school background characteristics. In the analysis presented in this section, the background characteristics used to develop predicted scores were (1) the scores obtained by first graders on the *Entry Level Test;* (2) a determination by teachers of the average occupational level of the parents of children in the school; (3) the number of students tested at each grade level; (4) the percent of students who spoke a language other than English; and (5) the percent of children who had been enrolled in the school for a relatively short period of time.

The difference between each school's actual test score (average score of its students) and its predicted test score is called a residual score. Because the scores of small schools tend to deviate from their predicted scores far more than do the scores of large schools, an adjustment in the scores was made so that the average deviations would be about equal for all schools regardless of size. These adjusted scores are called standardized residuals.

The criterion. Standardized residuals alone cannot be used as a criterion of program success. They measure achievement levels against the current achievement level of students in "similar" schools, but they do not measure progress. As a consequence, the criterion used in these analyses is the average change that has taken place in standardized residuals in each school since the inception of ECE in that school. For the ECE analysis the concept of baseline data was introduced. In the analyses presented in this section, the criterion value was the change that had taken place in standardized residual scores since the year before the schools entered ECE. Thus, for Phase I schools the values that are reported in the following tables are the changes that have taken place in standardized residuals since 1972-73, the year before those schools entered ECE. As a consequence, positive values indicate *improvement,* not absolute success; that is, positive values mean that, on the average, test performance was higher than it was the year before ECE was implemented in those schools. Positive values do not necessarily mean that performance in ECE schools has yet surpassed the level of performance in non-ECE schools.

The results. Table V-19 shows the average changes that have taken place in third grade standardized residual scores in ECE schools since the year before the schools entered the program. On the average virtually no change (+0.01) occurred after one year of participation; that is, the changes in third grade standardized residuals between 1973 and 1974 for Phase I schools, between 1974 and 1975 for Phase II schools,

TABLE V-19

Changes in Residual Scores (Weighted Averages) on Grade Three Reading Achievement Tests After One, Two, Three, and Four Years of Participation in ECE

Number of years in ECE	Change
One	+0.01
Two	−0.03
Three	+0.07
Four	+0.03

between 1975 and 1976 for Phase III schools, and between 1976 and 1977 for Phase IV schools were generally almost nonexistent. Similarly, the changes after two years of participation in ECE (from 1973 to 1975 for Phase I schools, from 1974 to 1976 for Phase II schools, and from 1975 to 1977 for Phase III schools) were close to zero. The only change of any significance was that noted after three years of participation in ECE. The change after four years is also practically nonexistent. (Only Phase I schools have been in ECE for four years; thus, the value of +0.03 is the average change that has taken place in standardized residuals from 1972-73 to 1976-77 in Phase I schools only.)

Table V-20 shows a more detailed breakdown of the changes that have taken place in standardized residuals. In this table the changes are shown for subsets of ECE schools. The subsets were established by dividing the schools on the basis of the *Entry Level Test* scores for those schools in the fall of 1973 (the first year in which the test was administered). Thus, the results could be reviewed for three categories of schools: (1) those that began with students who, on the average, had a low level of readiness skills upon entering school; (2) those whose students were slightly below the statewide average in readiness skills; and (3) those whose students were, on the average, above the statewide average in readiness skills.

The overall average results that show essentially no change do not hold true for each subset of schools. In fact, the average of no change is a combination of three totally different patterns for the three subsets of schools. The schools that had low *Entry Level Test* scores in 1973-74 have shown a pattern of slightly increased residuals after one year of participation but decreasing test scores from that point. (Much of the decrease that drew careful scrutiny in last year's report has disappeared.) The scores of the schools in the middle group, on the other hand, have, on the average, decreased slightly after the schools' first and second years of participation in ECE. This decrease has been followed by substantial increases after the third and fourth years. The group of schools with the highest 1973-74 *Entry Level Test* results had shown strong gains in scores until 1976-77. A large decline in scores for the Phase I schools in 1976-77 negated the gains reported in 1975-76.

TABLE V-20

Changes in Residual Scores (Weighted Averages) on Grade Three Reading Achievement Tests After One, Two, Three, and Four Years of Participation in ECE, by Three Levels of Performance on the 1973-74 *Entry Level Test*

Number of years in ECE	Changes in residual scores, by percentile rank, on the 1973-74 *Entry Level Test*		
	Low (1–20)	Middle (21–60)	High (61–99)
One	+0.04	–0.04	+0.05
Two	–0.11	–0.03	+0.05
Three	–0.02	+0.11	+0.11
Four	–0.08	+0.18	–0.01

Another way of reviewing the test results is to examine the total change in standardized residuals since the year before the ECE schools entered ECE (the baseline year). These results are displayed in Table V-21. Again the results show little change when averaged across all schools. Phase II schools have made the greatest gains, with standardized residuals up 0.09 since their baseline year (1973-74); Phase III schools are the only set with residuals this year that are lower than they were the year before entering ECE. This decline is primarily the result of a sharp decline in standardized residuals by schools in the middle *Entry Level Test* category.

These same results can be shown another way. Table V-22 shows the number of schools (and number of pupils in those schools in parentheses) that since their baseline year, have had increasing residuals, decreasing residuals, and unchanged residuals. Unchanged residuals are defined as those that have changed by less than 0.5. Increased residuals are those that have increased by 0.5 or more, and decreased residuals are defined inversely.

The results in Table V-22 are basically a repetition of those in Table V-21. For example, one can see from Table V-21 that the declines for Phase III schools in the middle *Entry Level Test* category were a result of a decline in residuals in 74 schools containing 4,108 third grade pupils and that residuals have risen in only 42 schools containing 2,421 third grade pupils. Conversely, Phase I middle *Entry Level Test* schools had the greatest increase in standardized residuals shown in Table V-21 (+0.18). This result is verified by the data in Table V-22; 67 of these schools had increasing residuals, while only 43 had decreasing residuals.

Nonetheless, interesting discrepancies can be noted. For example, while the average change in residuals was positive for Phase II schools, Table V-22 shows that, in fact, a few more schools have had declining residuals than have had increasing residuals. Thus, the average positive gain is the result of two factors: (1) the schools that gained are larger than those that declined (this is shown by the fact that while more schools have been declining than gaining, the total number of students in the gaining schools is larger); and (2) the gains in the increasing schools are greater than the losses in the declining schools.

Table V-23 portrays the changes in standardized residuals in still another way. The table is a replication of Table V-20, but with the comparable scores from the 1975-76 evaluation report added in parentheses. In 1975-76 the values reported in the row for three years of ECE participation were those of the Phase I schools, which had then just finished their third year in ECE. Those same schools have now completed their fourth year of participation, so it is reasonable to compare their changes in residuals from the baseline data after their fourth year to last year's changes after three years. Similarly, the results for two years and three years of participation are comparable to last year's results after one and two years of participation.

These results show a substantial decline in scores across the board from the first to the second year

TABLE V-21

Changes in Third Grade Standardized Reading Residuals from Baseline Year Through 1976-77

Entry Level Test percentile range	Phase (year of entry into ECE) I (1973-74)	II (1974-75)	III (1975-76)	IV (1976-77)
Low (1–20)	–0.08	+0.16	–0.02	+0.13
Middle (21–60)	+0.18	+0.08	–0.20	–0.04
High (61–99)	–0.01	+0.07	+0.03	+0.06
Total	+0.02	+0.09	–0.07	+0.04

TABLE V-22

Numbers of Schools (and Pupils) That Have Had Decreasing, Unchanged, and Increasing Third Grade Standardized Reading Residuals from Baseline Year Through 1976-77

Entry Level Test percentile range		Phase I	II	III	IV
Low (1–20)	Decreasing	48 (3,941)	56 (3,223)	41 (3,029)	40 (3,156)
	Unchanged	30 (1,901)	35 (2,388)	26 (1,941)	47 (3,844)
	Increasing	47 (3,454)	57 (3,856)	37 (2,649)	50 (3,771)
Middle (21–60)	Decreasing	43 (2,553)	88 (5,040)	74 (4,108)	86 (5,314)
	Unchanged	47 (2,598)	87 (4,810)	62 (3,170)	106 (6,159)
	Increasing	67 (3,700)	87 (5,534)	42 (2,421)	74 (4,628)
High (61–99)	Decreasing	37 (2,010)	57 (3,019)	46 (2,491)	65 (4,041)
	Unchanged	35 (2,083)	92 (4,984)	76 (4,113)	130 (7,810)
	Increased	30 (1,436)	54 (2,868)	47 (2,413)	87 (5,124)

of ECE participation. Conversely, even stronger gains are shown across the board from the second to the third year. The changes in Phase I schools from last year show distinctly different patterns for the three subsets of schools. On the average, schools in the lowest *Entry Level Test* group had extremely large drops in standardized residual scores after three years of participation. This year, while their scores are still lower than they were before entering ECE, they are substantially increased over last year. Schools in the middle *Entry Level Test* group showed strong gains last year; those gains have been sustained. On the other hand, schools in the highest *Entry Level Test* group, which last year had scores that were almost as high as those in the middle *Entry Level Test* group, lost all of their gains and currently are scoring, after four years in ECE, almost exactly as they were before they began participation in ECE.

Table V-24 is the most detailed presentation of all. The changes in residual scores from the baseline year are shown for each phase of ECE schools after each year of participation.

Publishers' Norm-Referenced Test Data

For each type of funded school program, three types of analyses are conducted using the standard scores from publishers' norm-referenced tests in reading and mathematics. The analysis of most interest is that in which a comparison is made between the position of students relative to the norm group, by type of program (for example, students in all schools with consolidated application programs), and the growth of students in the publishers' norm group. A second analysis involves an examination of the progress of the students from the time of the pretest to the post-test, relative to the publishers' norm group. A final analysis involves the progress of students, by grade level, within each of the above analyses.

TABLE V-23

Changes in Residual Scores (Weighted Averages) on Grade Three Reading Achievement Tests After One, Two, Three, and Four Years of Participation in ECE, by Three Levels of Performance on the 1973-74 *Entry Level Test*

Number of years in ECE	Changes in residual scores, grouped by percentile rank on the 1973-74 *Entry Level Test*			All ECE schools (weighted average)
	1–20	21–60	61–99	
One	+0.04	−0.04	+0.05	+0.01
Two	−0.11 (0.00)	−0.03 (+0.05)	+0.05 (+0.06)	−0.03 (0.00)
Three	−0.02 (−0.15)	+0.11 (+0.05)	+0.11 (+0.06)	+0.07 (−0.01)
Four	−0.08 (−0.24)	+0.18 (+0.19)	−0.01 (+0.18)	+0.03 (+0.03)

NOTE: Changes in residual scores reported on page 36, Table V-9 of *Evaluation Report of ECE, ESEA Title I, and EDY, 1975-76* for the same groups of schools are given in parentheses.

All Schools with Consolidated Application Funding

Figure V-3 is a summary of student achievement on standardized reading tests for all schools that reported scores from a publisher's norm-referenced test. The scores of only those students who were classified as fluent-English speaking and who were tested at the correct level of the publisher's norm-referenced test for their age and grade are represented in the figures. Summaries of achievement scores for students who were tested out-of-level appear in Appendix I.

Reading. The reading achievement data in Figure V-3 indicate that test score gains of program participants exceeded norm group progress at all grade levels, with the exception of grade eleven. The standard scores in the eleventh grade dropped from 40.8 on the pretest to 40.7 on the post-test. In terms of raw score points (not shown), eleventh grade students made progress between the pretest and the post-test, but their *rate* of progress was less than that of the norm group. Thus, their standard score declined by 0.1 during the year.

The data for grades one to three are for the greatest number of participating schools and students.

The reading achievement data in Figure V-3 indicate that student participants at all grade levels were scoring below the national average of 50 standard score points on the pretest. At all grade levels except grade three, student participants were still scoring below the national average of 50 on the post-test. In grade three, students advanced from 46.9 on the pretest (3.1 below the national average) to 50.2 (0.2 above the average) on the post-test, thereby showing a gain of 3.3 standard score points and registering greater growth than students at any of the other grade levels.

Mathematics. Figure V-4 presents a summary of student achievement on standardized mathematics tests for all participating students. At all grade

levels student participants scored below the national average on the pretest. Students in grades one and two scored above the national average on the post-test, but those in all other grades scored below the national average. Despite their lower absolute performance on the pretests and post-tests, students showed more growth than the publishers' norm group at all grade levels except grade eleven. The greatest growth was shown in grades one, two, and three, which include the largest number of participating schools and students. The largest gain (5.1 standard score points) in mathematics was made by students in the first grade.

Multiple-Funded Schools

This section contains information about student achievement in schools receiving funds from more than one funding source. The majority of these schools received a combination of ECE, ESEA Title I, and EDY funding; but schools that received bilingual education and Miller-Unruh funds are also included. Reading and mathematics scores for students participating in the multiple-funded school programs are shown in Figure V-5.

Reading. Analyses of weighted standard score gains revealed that across all grades, students in multiple-funded schools typically gained 1.2 standard score points. Thus, across grades, students made greater gains than the publishers' norm group from pretest to post-test. A comparison between pretest and post-test standard scores in reading for participating students in school programs supported by more than one funding source showed that third grade participants typically made the greatest gains. The third grade scores increased from 45.1 to 48.4, a difference of 3.3 standard score points. The findings displayed in Figure V-5 indicate that students in grades one through eight (except for grade seven) made the greatest gains and that students in grades nine through twelve tended to have progressively lower pretest and post-test scores.

Mathematics. Participating students in school programs supported by more than one funding source increased in position relative to the national average at all grade levels except grade eleven. Students in the primary grades made the greatest gains. The pretest and post-test standard scores in mathematics shown in Figure V-5 indicate that the greatest gains were made in grade one, where scores increased 5.1 standard score points from 45.9 on the pretest to 51.0 on the post-test. Students in grades seven and higher showed a slight gain relative to the publishers' norms. Students in grade eleven were an exception again; they showed less progress relative to the norms.

All ECE Schools

Since 1972-73 ECE has provided a framework for the restructuring of the educational process in kindergarten through grade three. ECE support has enabled schools to integrate both basic and categorical resources to meet the needs of students requiring different types of services. The restruc-

TABLE V-24

Changes in Residual Scores (Weighted Averages) on Grade Three Reading Achievement Tests After One, Two, Three, and Four Years of Participation in ECE, by Year of Entry into ECE, for Three Levels of Performance on the 1973-74 *Entry Level Test*

Year of entry into ECE	Percentile rank 1–20				Percentile rank 21–60				Percentile rank 61–99			
	Number of years in ECE				Number of years in ECE				Number of years in ECE			
	1	2	3	4	1	2	3	4	1	2	3	4
1973-74 (Phase I)	–0.08	+0.01	–0.21	–0.08	–0.10	+0.07	+0.17	+0.18	+0.10	+0.02	+0.18	–0.01
1974-75 (Phase II)	+0.02	–0.29	+0.16		+0.01	+0.03	+0.08		–0.08	+0.08	+0.07	
1975-76 (Phase III)	+0.09	–0.02			–0.07	–0.20			+0.16	+0.03		
1976-77 (Phase IV)	+0.13				–0.04				+0.06			

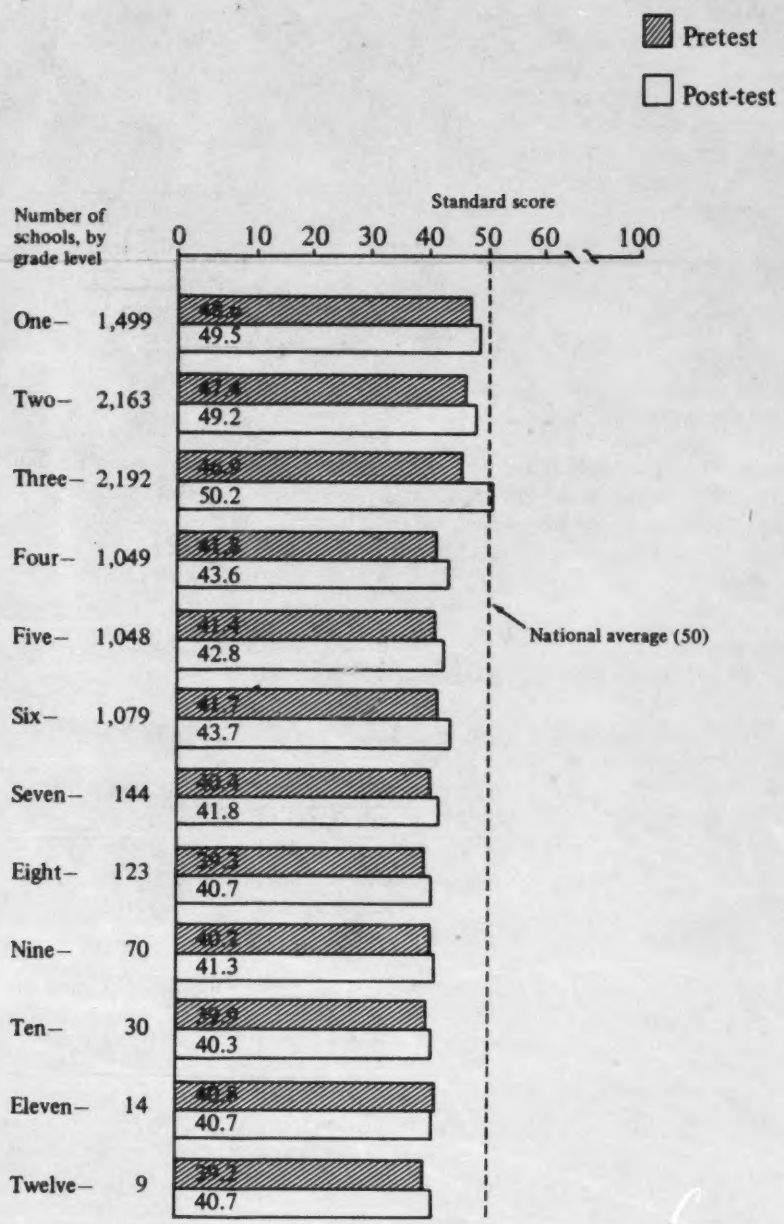


Fig. V-3. Pretest and post-test standard scores in reading achievement, by grade level, for students participating in school programs supported by consolidated funding, 1976-77

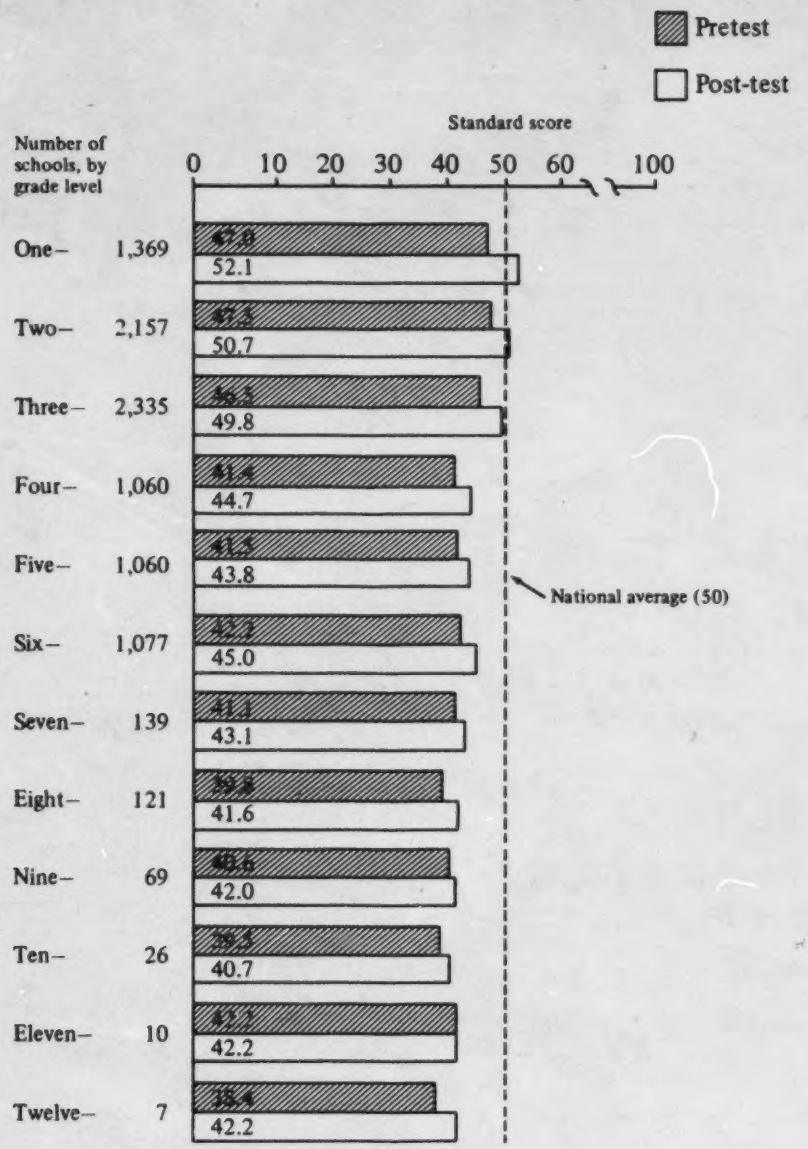


Fig. V-4. Pretest and post-test standard scores in mathematics achievement, by grade level, for students participating in school programs supported by consolidated funding, 1976-77

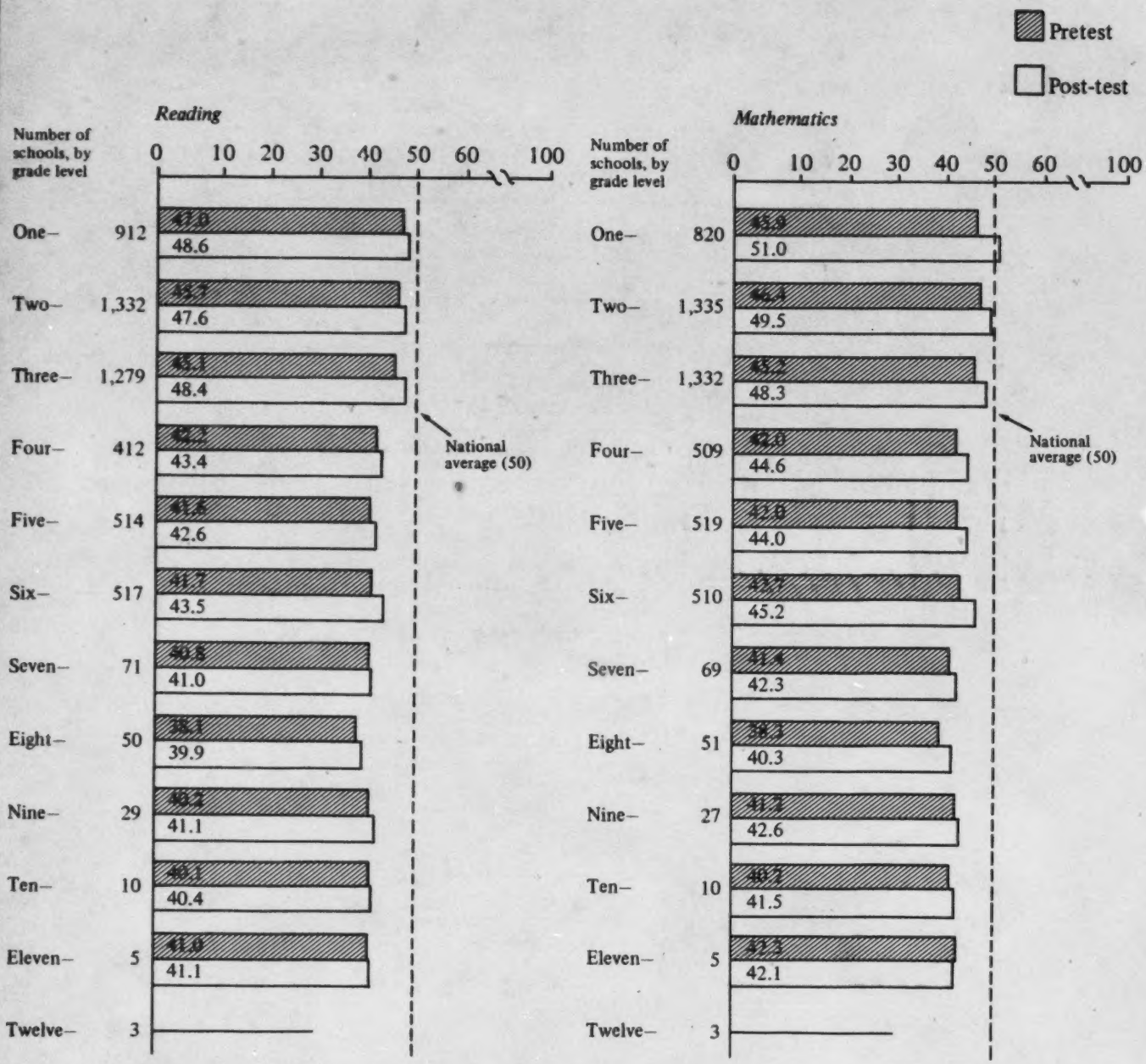


Fig. V-5. Pretest and post-test standard scores in reading and mathematics achievement, by grade level, for students participating in school programs supported by more than one funding source, 1976-77

turing involved the total school environment in the primary grades.

The findings reported in the first part of this section are for all schools engaged in restructuring (all ECE schools) regardless of whether they received other types of aid.

Pretest and post-test standard scores for students participating in ECE were used to (1) measure reading and mathematics achievement gains; and (2) determine the relationship between the length of participation in ECE and changes in student performance in reading and mathematics.

Reading. Figure V-6 shows reading achievement scores for students in all schools that received ECE funds. On the average, students in ECE schools were progressing in reading at a rate greater than that reflected by publishers' norms. Pretest achievement scores in grades one, two, and three were from 0.7 to 2.2 points below the national norms, but post-test scores ranged from the national norm to 1.1 points above the national norm.

Mathematics. Students in schools that received ECE funds showed substantially greater growth than the publishers' norm group showed. The greatest growth was in grade one. As shown in Figure V-7, scores increased from 47.6 to 52.6, a difference of 5.0 standard score points. The average post-test achievement for students in all ECE schools was above the national average.

Figures V-8 and V-9 show average 1976-77 reading and mathematics achievement scores for students in all ECE schools, grouped by the year in which the schools entered ECE. Overall, student performance improved from the pretest to the post-test at a rate in excess of the publishers' norms regardless of when schools entered ECE.

Schools That Received ECE Funds and Compensatory Education Funds

Figure V-10 contains the reading and mathematics achievement scores on publishers' norm-referenced tests for students in grades one, two, and three who were in ECE schools that also received compensatory education funds (ESEA Title I and/or EDY funds).

Reading. In schools that received ECE funds and compensatory education funds, students progressed at a rate greater than that of the publishers' norm group at all grade levels. Gains relative to the publishers' norm group were progressively greater from grade one to grade three, with students at grade three making the greatest gains (3.4 standard score points). Pretest scores were progressively lower from grade one to grade three.

Mathematics. In mathematics the greatest gains between the pretest and post-test were made by students in grade one. Their scores increased from 45.9 to 51.2, a difference of 5.3 standard score points. In grades two and three, students gained 3.2 and 3.3 standard score points, respectively.

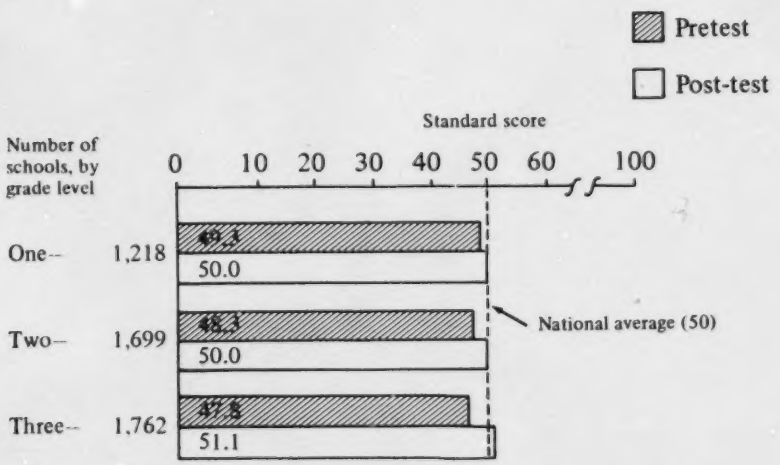


Fig. V-6. Pretest and post-test standard scores in reading achievement, by grade level, for all schools participating in early childhood education funded programs, 1976-77

Schools That Received Only ECE Funds

The schools reported on in this section received only ECE funds. The pretest scores in ECE-only schools were higher than those in schools that received ECE funds and compensatory education (EDY/ESEA Title I) funds.

Reading. Figure V-11 shows average student reading achievement scores for students in grades one, two, and three in schools that received only ECE funds. The average pretest score for grade three students in ECE-only schools was 50.4 standard score points. The average post-test score in such schools was 53.8, a gain of 3.4 points more than would otherwise have been expected in one year of instruction. While students in ECE-only schools typically scored close to or at the norm on the pretest, they exceeded the publishers' norms by 1.7 to 3.8 points at each grade level on the post-test. This result suggests that students in ECE-only schools were gaining relative to publishers' norms on norm-referenced reading tests. Similar findings were reported in the consolidated evaluation reports for 1974-75 and 1975-76. On the basis of 1974-75 data, attempts were made to limit the possibility of biased norms being responsible for such significant gains. The statistical procedures that were employed to mitigate this bias reduced the gains only slightly and confirmed the finding of significant gains from pretest to post-test. A full discussion of within-year measuring of achievement gains is presented in the methodology section of this report.

Mathematics. The data in Figure V-11 show that students in ECE-only schools scored from 2.7 to 4.3 standard score points above the publishers' norms on the mathematics post-tests.

All Schools That Received Compensatory Education Funds

Some schools received compensatory education funds (ESEA Title I and/or EDY funds) to provide services to students with special educational needs. Many of these schools also received other funds, such as ECE, bilingual education, and Miller-Unruh funds.

The achievement scores presented in this section are for fluent-English-speaking students. The data for limited-English-speaking students are discussed in a separate section.

Figure V-12 contains achievement data in reading and mathematics for students in school programs supported by ESEA Title I and/or EDY funds either solely or in combination with funds from one or more of the other funding sources.

Reading. Students in schools that received compensatory education funds progressed at a rate greater than that of the publishers' norm group at all grade levels. The largest gains in reading were in grades one through six, with the gains in grade three being the greatest. In grade three average student scores increased from 44.2 to 47.7, a gain of 3.5 standard score points.

Post-test scores were below the national average at all grade levels. Post-test scores in grades one and three were closest to the national average.

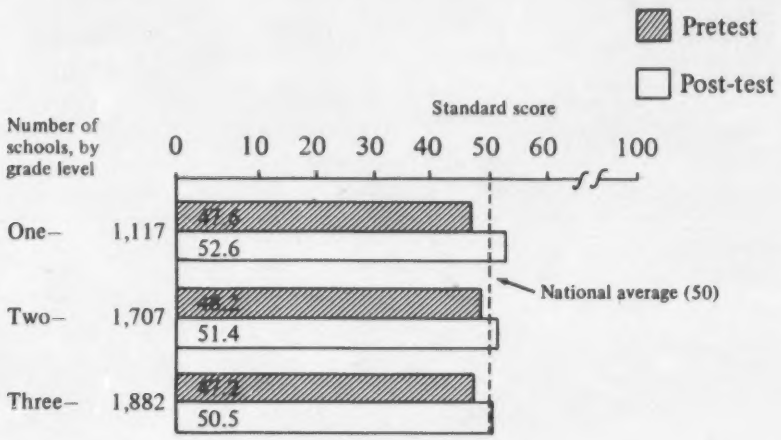


Fig. V-7. Pretest and post-test standard scores in mathematics achievement, by grade level, for schools participating in early childhood education funded programs, 1976-77

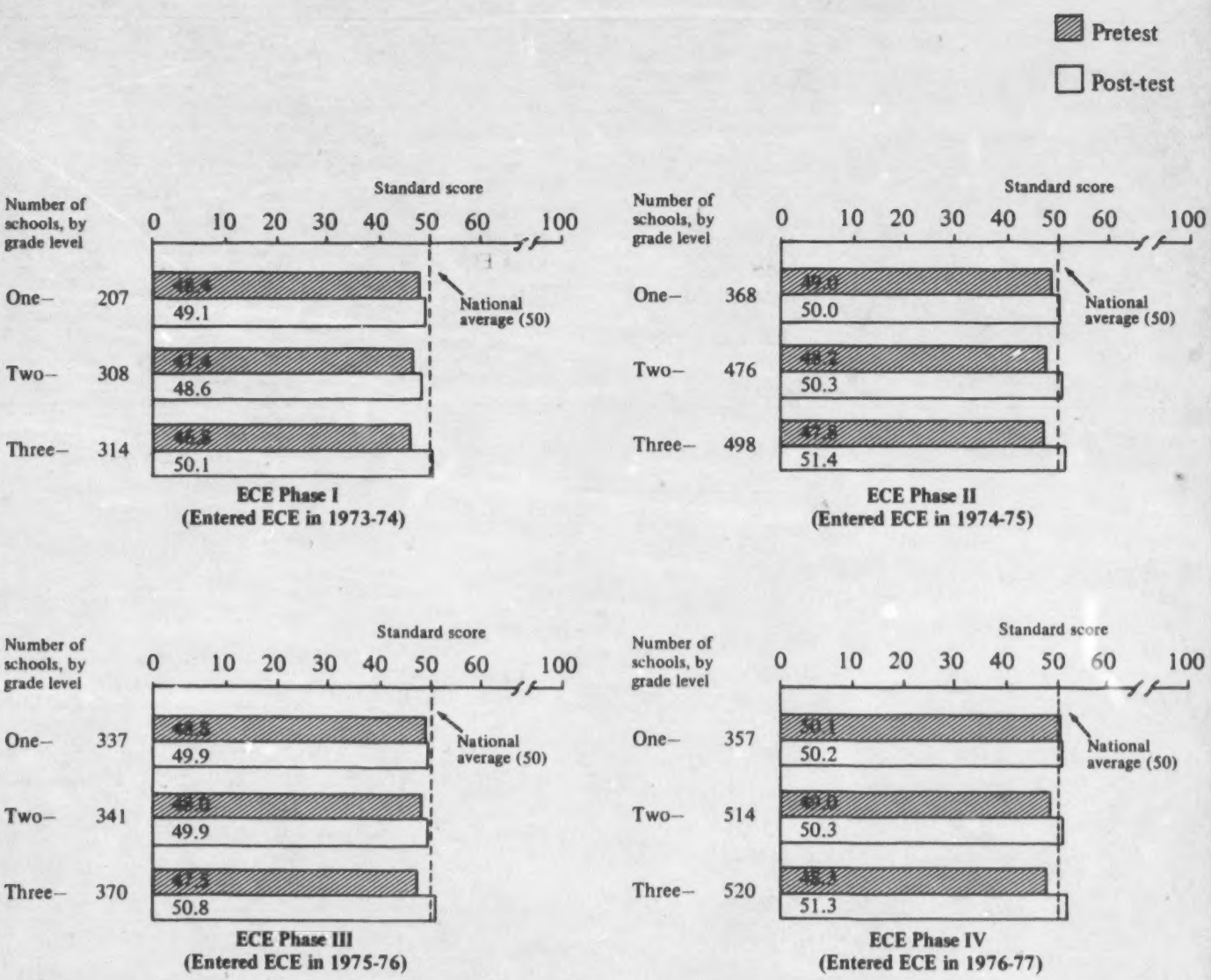


Fig. V-8. Pretest and post-test standard scores in reading achievement, by grade level and year of entry, for all schools participating in early childhood education funded programs, 1976-77

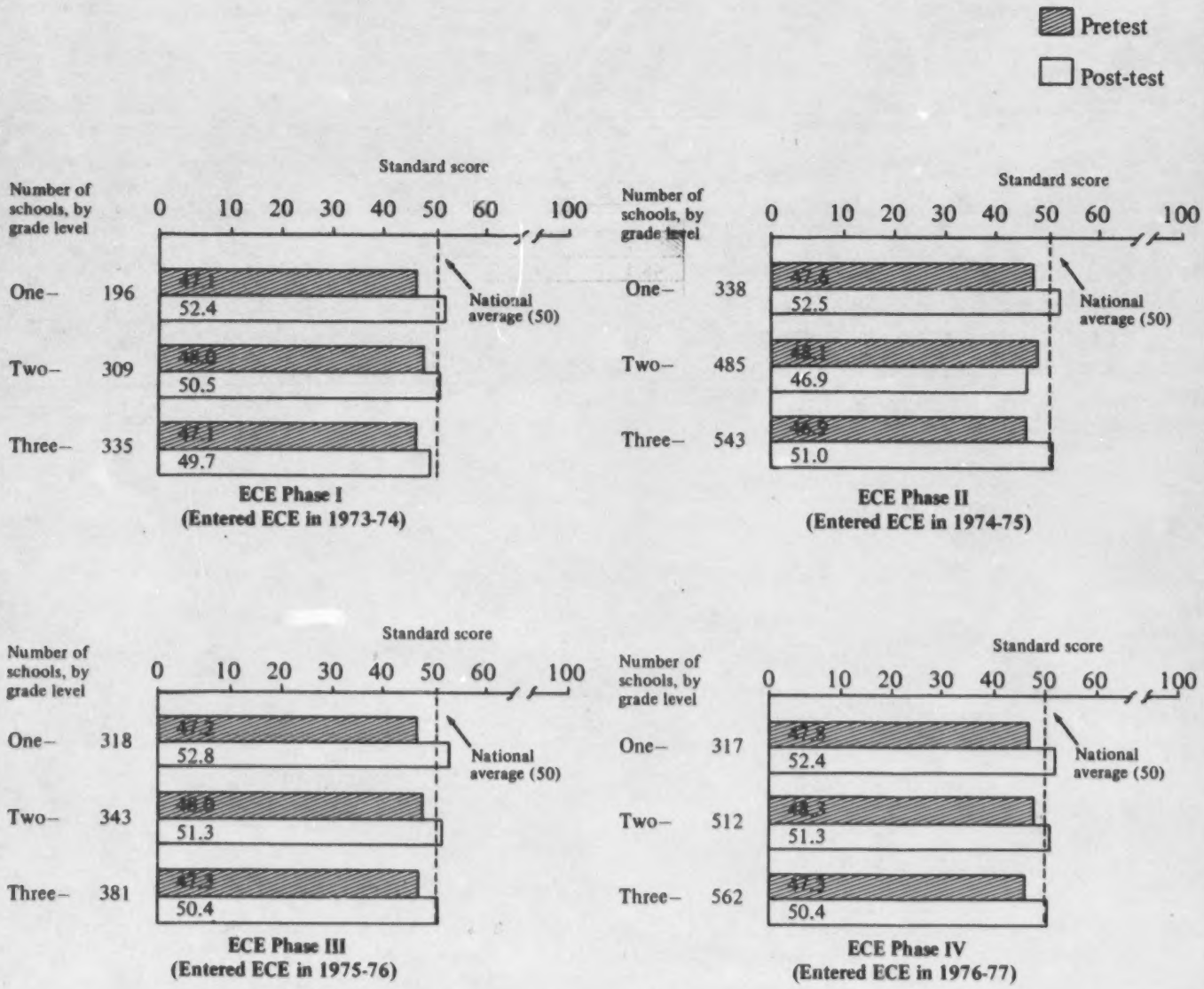


Fig. V-9. Pretest and post-test standard scores in mathematics achievement, by grade level and year of entry, for all schools participating in early childhood education funded programs, 1976-77

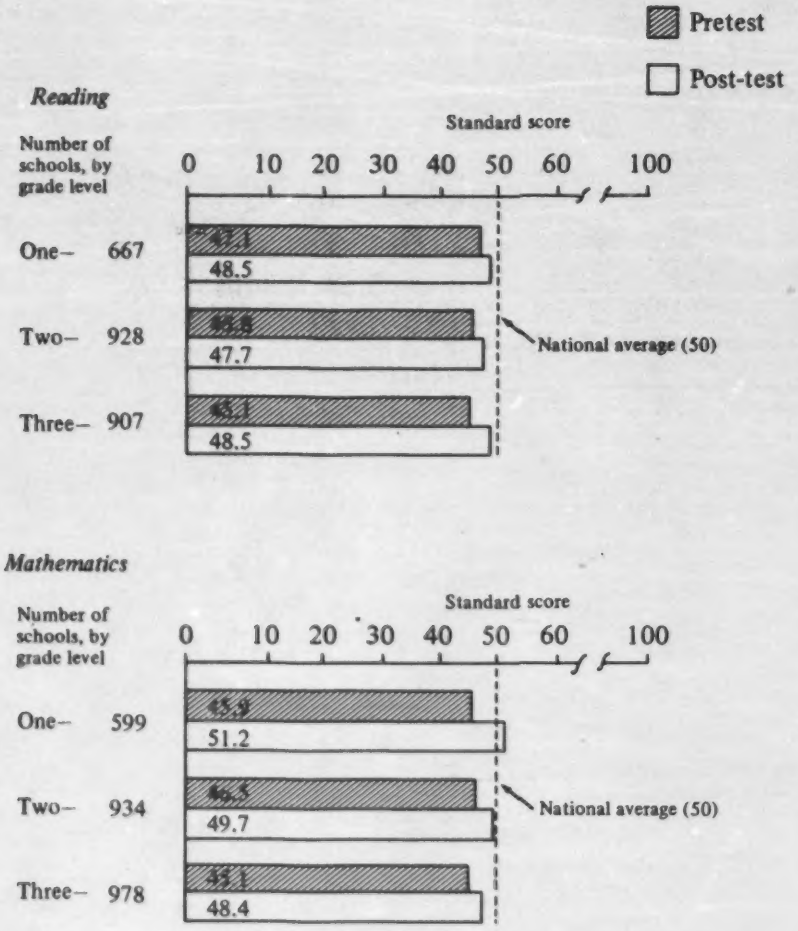


Fig. V-10. Pretest and post-test standard scores in reading and mathematics achievement, by grade level, for students in school programs supported by ECE and compensatory education funds, 1976-77

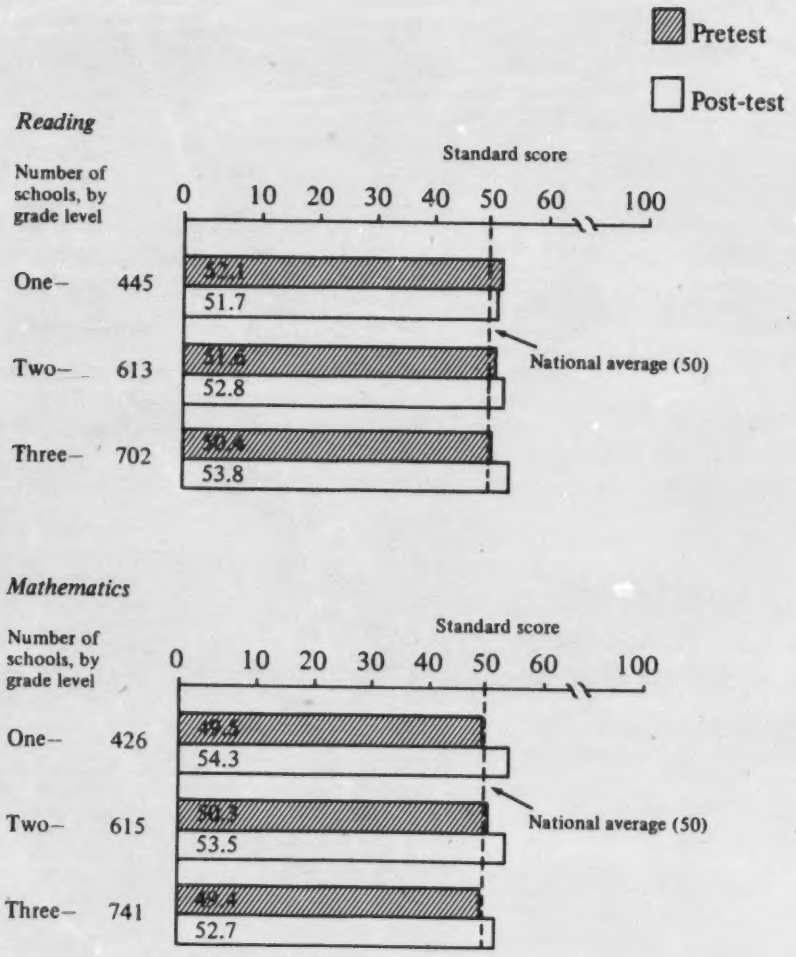
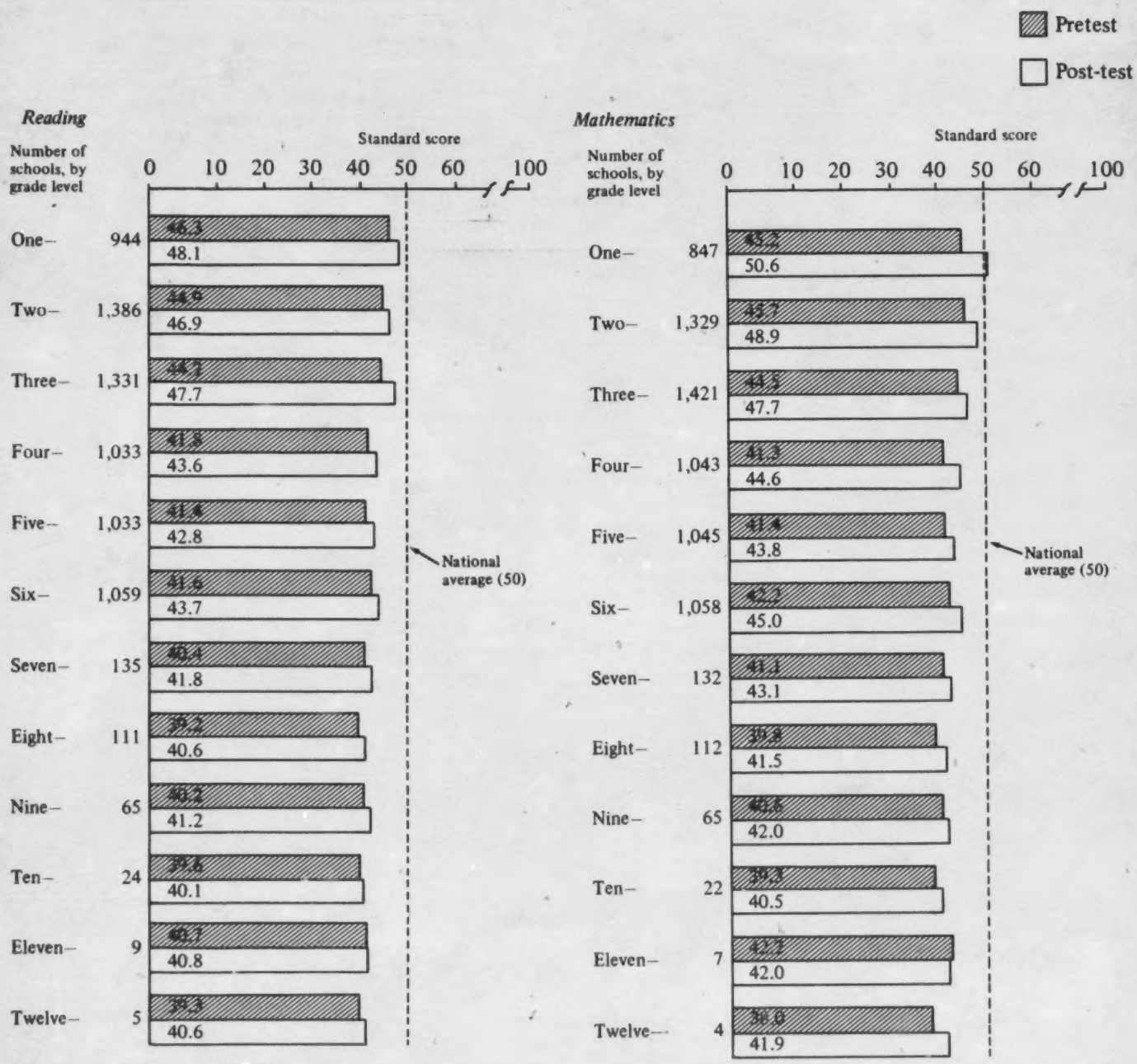


Fig. V-11. Pretest and post-test standard scores in reading and mathematics achievement, by grade level, for schools that received only ECE funds, 1976-77



NOTE: School scores were weighted on the basis of the number of students tested. *Number of schools, by grade level* means the number of schools that reported usable achievement data for each grade level.

Fig. V-12. Pretest and post-test standard scores in reading and mathematics achievement, by grade level, for all schools that received compensatory education funds, 1976-77

Mathematics. The gain scores in mathematics for students in schools that received compensatory education funds were greater than those of publishers' norm groups at all grades except grade eleven. Post-test scores were below the national average. Students in grades one through four made the greatest gains in mathematics. More specifically, the greatest gains were made in grade one, with the average score increasing from 45.2 on the pretest to 50.6 on the post-test, a difference of 5.4 standard score points. The amount of student gains decreased from elementary schools to secondary schools. Students in grade eleven showed a slight loss. The average score in mathematics in grade eleven dropped from 42.2 to 42.0.

Schools That Received Only ESEA Title I Funds

This section contains information about student achievement in school programs supported by ESEA Title I funds only. Data for schools with Title I funds to serve handicapped and neglected and delinquent youth are provided in a separate section.

Figure V-13 contains data for grades one through twelve. The reader should note that relatively few secondary schools conducted programs and that out-of-level testing was conducted in many secondary schools. A comparison of 1976-77 scores with those from 1975-76 showed that both the pretest and post-test scores declined slightly in schools that received only ESEA Title I funds. These declines may be the result of two factors: (1) more schools were testing on an annual (spring/spring) basis, in which case estimates of gains are more conservative; and (2) improved data collection procedures provided for the elimination of nonparticipant scores from the data pool. It has been determined that for previous reports, a few districts submitted data for all students rather than just program participants at the secondary level.

Figure V-13 shows reading and mathematics achievement scores for students in programs supported only by ESEA Title I funds.

Reading. Across all grades participating students in schools that received only ESEA Title I funds typically gained 2.4 standard score points from pretest to post-test. Their rate of progress was greater than that of the publishers' norm group. Participating students in grades one through three made the greatest gains from pretest to post-test. Participating students in grades seven through twelve tended to have progressively lower gain scores.

Mathematics. Across all grades participating students in schools that received only ESEA Title I funds typically gained 3.3 standard score points in mathematics achievement. Although both pretest and post-test scores were below the national average at all grade levels, gains were greater than those of the publishers' norm group at every grade except grade eleven. Participating students in grade one and grade three gained 7.9 and 7.7 standard score points, respectively.

ESEA Title I Programs for Handicapped Students and Neglected and Delinquent Youth

During 1976-77 ESEA Title I funds were provided to serve 35,946 students who qualified for services in special compensatory education programs. These programs were provided under the auspices of the Departments of Education, Corrections, and Health; California Youth Authority; offices of county superintendents of schools; and school districts.

Services were provided for 5,146 handicapped students in special schools operated by the Department of Education and in state hospitals operated by the Department of Health; for 3,886 delinquents in institutions operated by the California Youth Authority; and for 314 felons in institutions operated by the Department of Corrections. Local educational agencies provided services for 26,888 neglected and delinquent youth. The number of participants, by age and approximate grade span, in special compensatory education programs supported by Title I funds is presented in Table V-25.

Programs for handicapped students in special state schools. Programs at special state schools served students when local educational agencies were unable to meet the students' specific educational needs. The services provided at these schools included comprehensive diagnostic evaluation and counseling services for the parents and families of handicapped students. The schools also participated in professional internship programs and teacher training programs with the University of California and the California State University and Colleges.

Six special state schools administered by the Department of Education received ESEA Title I funds during 1976-77 to augment instructional programs for the neurologically handicapped, blind, and deaf. A total of 1,169 handicapped students in special schools participated in such instructional programs. Of that number, 100, or 9 percent, were neurologically handicapped; 121, or

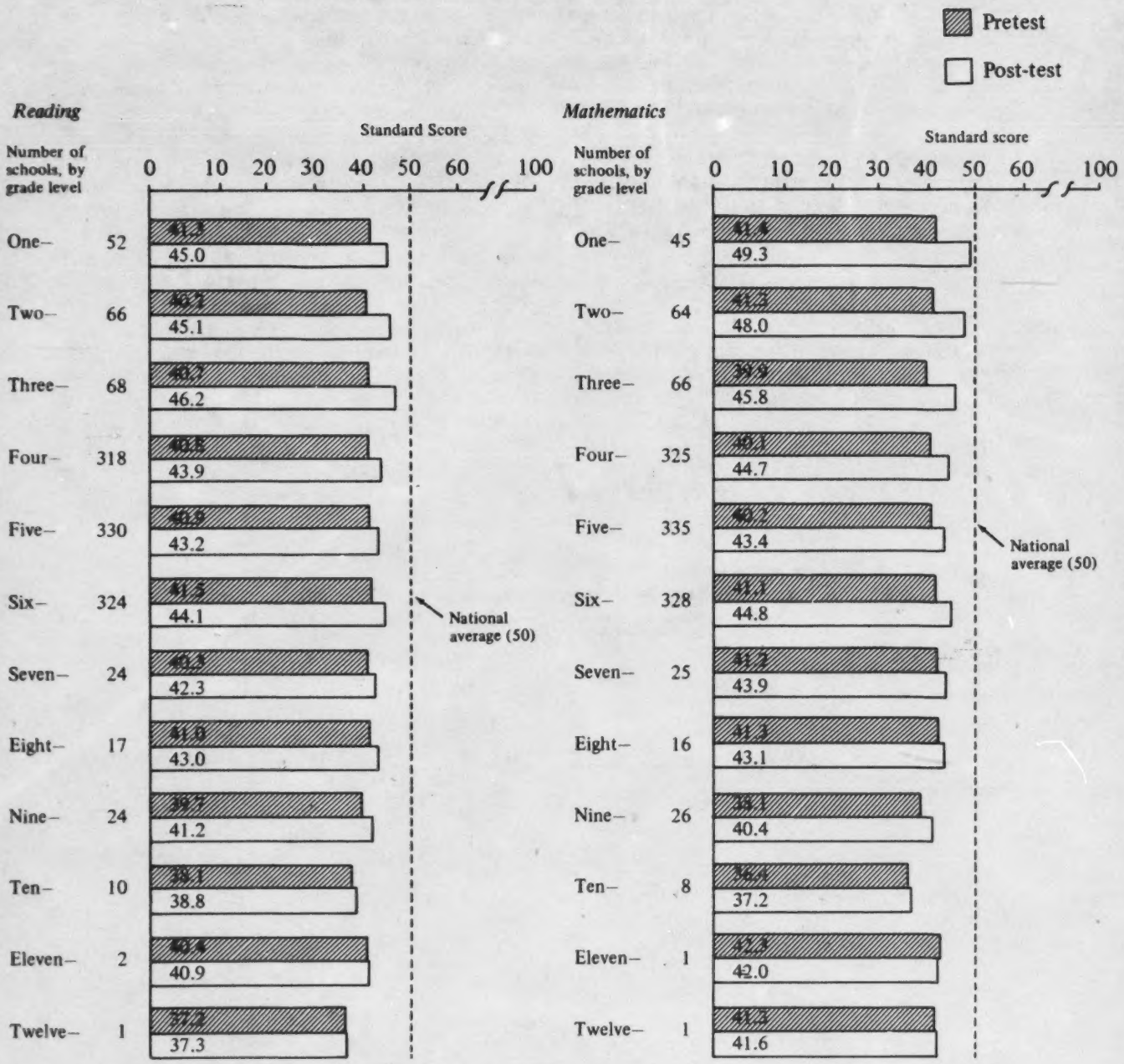


Fig. V-13. Pretest and post-test scores in reading and mathematics achievement, by grade level, for students in schools that received only ESEA Title I funds, 1976-77

10 percent, were blind; and 948, or 81 percent, were deaf. Programs were in operation between 184 and 206 school days. Participants in the schools for neurologically handicapped students attended classes between three and nine months. Students in schools for the deaf and the blind attended classes for the full school year.

The Department of Health operated programs in 15 mental health facilities located throughout the state. These programs operated between 200 days and 365 days. The average period of attendance for the developmentally disabled was from 9 to 12 months; for the mentally disabled it was from 5 to 8 months.

The ESEA Title I allocations to the Department of Health provided for the establishment of supplementary educational components in state and local health treatment programs. A total of 3,818 handicapped students participated in these activities. Of the student participants 2,263, or 59 percent, were developmentally disabled, those whose special needs were the result of emotional stress, psychosis, drug abuse, or the like; and 1,303, or 34 percent, were mentally disabled. Compounding these functional limitations for many students were secondary handicaps affecting vision, hearing, ambulation, and metabolism. Because of the severe nature of their emotional disorders, the students' learning difficulties centered around reading and listening, comprehension of words and symbols, and writing and speaking.

The Neuropsychiatric Institute at the University of California, Los Angeles, received ESEA Title I monies to serve students with severe handicaps. During 1975-76 a total of 123 special needs students received augmented instructional services in this multidisciplinary hospital setting. All students were admitted to the institute on the basis of medical referrals and accompanying problems of personal adjustment. The program was designed to meet the unique needs of the students in terms of both their emotional needs and their academic abilities.

Programs for neglected and delinquent youth. ESEA Title I programs served neglected and/or delinquent students in a variety of special institutions. The programs included those administered

TABLE V-25

Number of Handicapped Students and Neglected and Delinquent Youth Participating in Programs Funded by ESEA Title I, 1976-77

Agency or facility	Approximate grade level and age of students					Total
	Preschool and kindergarten 2–5 yrs.	Elementary school 6–11 yrs.	Junior high school 12–14 yrs.	High school 15–18 yrs.	Adult 19–21 yrs.	
State Department of Education						
Neurologically handicapped	0	48	38	13	1	100
Blind	5	47	29	31	9	121
Deaf	12	251	218	431	36	948
State Department of Health						
Developmentally disabled	18	337	427	857	624	2,263
Mentally disabled	3	39	152	960	149	1,303
UCLA						
Neuropsychiatric Institute	13	53	31	26	0	123
Local educational agencies						
Neglected and delinquent	14	2,666	7,707	16,184	317	26,888
California Youth Authority	0	0	55	2,658	1,173	3,886
State Department of Corrections				35	279	314
Totals	65	3,441	8,657	21,195	2,588	35,946

by local educational agencies, the California Youth Authority, and the Department of Corrections. While complying with conditions necessarily imposed by the institutions, each agency or institution was required to develop a comprehensive educational plan for its use of ESEA Title I funds; this plan included both instructional and instructional-support services for the students served.

The primary objectives of most programs for neglected and delinquent youth were to raise academic achievement and to promote attitudinal changes toward themselves, their peers, and society as a whole. To achieve these objectives, staffs in many of the institutions concentrated on counseling and on a diagnostic/prescriptive instructional approach related to individual student needs.

Because of the short period of time spent in the program by a majority of the participants, the interval between pretesting and post-testing was not great enough to provide for a meaningful interpretation of norm-referenced test results. In addition, the pretest and post-test results reported for those participants who had been five months or more in the program represent such a minute percentage of those being served that any conclusions regarding improved performance would be tentative at best. Improvement was reported in the areas of social and communication skills.

Programs administered by the California Youth Authority and the California Department of Corrections. ESEA Title I funds are allocated each year for qualifying students consigned to the California Youth Authority (CYA) from both juvenile and criminal courts and for those committed to the Department of Corrections from criminal courts.

All students within these institutions are eligible for service, but because of financial constraints, only those persons identified as most in need of remedial instruction in reading and mathematics are selected for participation in the program.

Programs administered by a local educational agency. During the 1976-77 school year, 109,977 neglected and delinquent youth received educational services provided by 170 public and private institutions administered at the school district or county level. Of this number, 26,188 students received additional educational services provided under ESEA Title I. The number of students served—listed by type of institution, age span, and approximate grade level—is presented in Table V-26.

Of the total number of students served under ESEA Title I programs administered by local educational agencies, 773 (about 3 percent) were classified as being either limited- or non-English-speaking students, while 1,349 (about 1 percent) of the total neglected and delinquent population were classified as being limited- or non-English speaking.

The average length of participation in programs supported by ESEA Title I funds ranged from less than three months for 73 percent of the students to more than six months for 15 percent of the students.

During 1976-77, services were provided to 4,200 students in ten institutions operated by the California Youth Authority and three institutions operated by the Department of Corrections.

The emphasis in ESEA Title I programs in these institutions was on diagnostic/prescriptive instruction in reading, language, and mathematics.

Schools That Received Only EDY Funds

This section contains findings about the reading and mathematics achievement of students who participated in EDY programs in schools in which EDY monies were the only categorical funds received. Very few schools received only EDY funds.

Figure V-14 shows reading and mathematics achievement for students in programs supported only by EDY funds.

Reading. Across all grade levels participating students in schools that received only EDY funds gained 1.9 standard score points from the pretest to the post-test; they progressed at a rate greater than the publishers' norm group. Students in grades one through seven appeared to have made the greatest progress relative to the publishers' norm group. Too few schools reported data in grades nine through twelve for a reliable interpretation of the differences from the pretest to the post-test.

Mathematics. Standard scores in mathematics achievement are shown in Figure V-14 for participating students in grades one through eleven in school programs supported solely by EDY funds. No scores were available for grade twelve students. Post-test standard scores were higher than pretest scores for all grade levels except grade eleven. An analysis of the weighted average of standard score gains across grades revealed that participating students in EDY-only schools gained 2.4 standard score points.

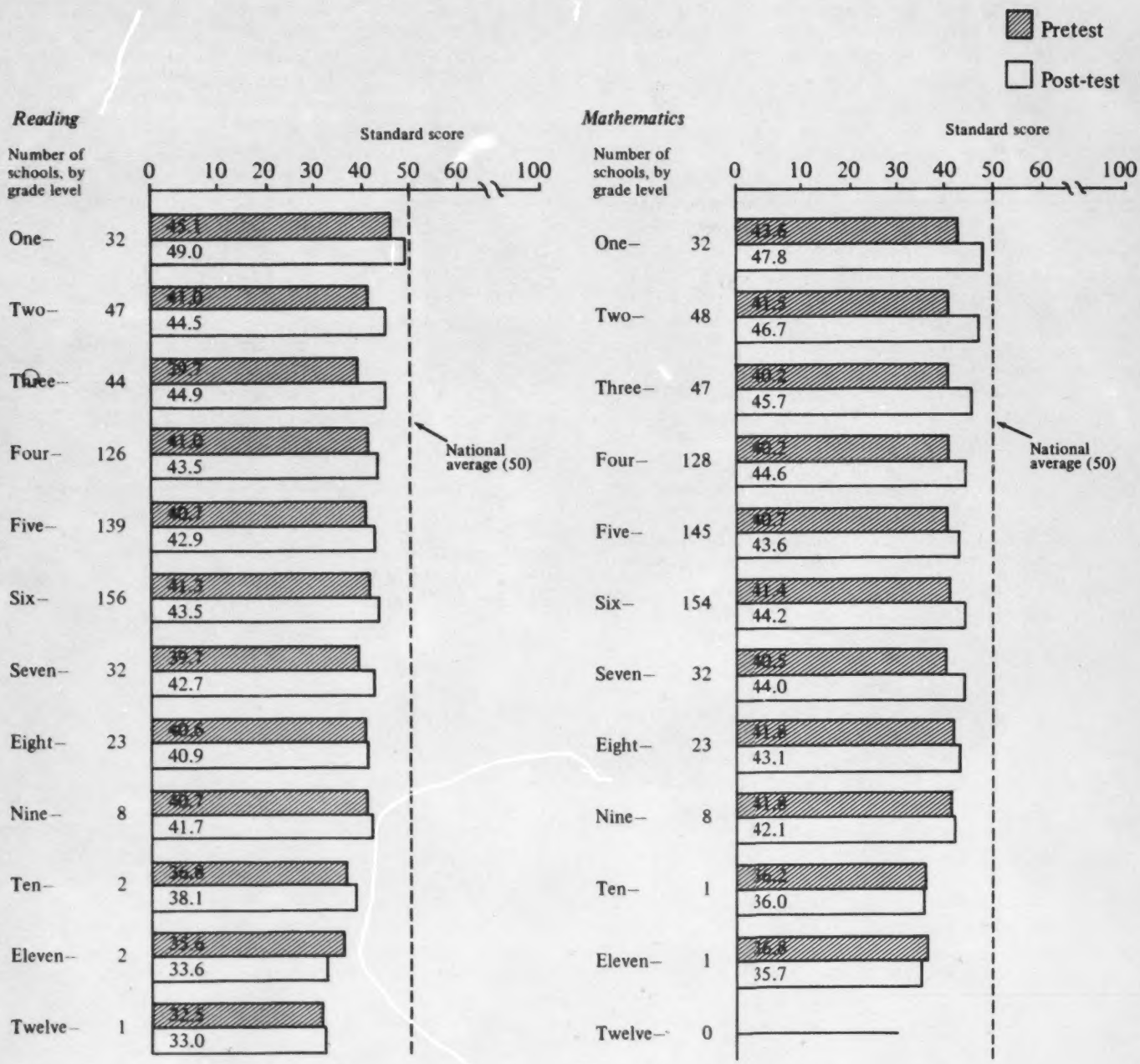


Fig. V-14. Pretest and post-test standard scores in reading and mathematics achievement, by grade level, for students in school programs supported by EDY funds only

All Schools with Programs for Limited- and Non-English-Speaking Students

This section of the report includes information about the following:

- Reading and mathematics achievement of limited-English-speaking students who participated in school programs supported by consolidated funding sources
- Reading and mathematics achievement of limited-English-speaking students who participated in school programs supported by bilingual education funds only

All schools that receive ECE, ESEA Title I, EDY, or bilingual education funding are required to address the needs of limited- and non-English-speaking students in preparing their comprehensive program plans.[4] The bilingual education component of the school program is to include fluent-English-speaking students and limited- and non-English-speaking students as program participants.

[4]Whether or not it receives consolidated funding, each school with an enrollment of ten or more limited- or non-English-speaking students at a particular grade level is required to provide an instructional program to address the educational needs of these students. Since nonfunded schools are not required to submit Form E-127P evaluation data, however, such schools are not represented in this report.

Figures V-15 and V-16 show pretest and posttest standard scores in reading and mathematics achievement, respectively, for limited-English-speaking students in school programs supported by consolidated funding sources. Limited-English-speaking students were determined to have limited English-language fluency at the time of the pretest. Accordingly, these scores for limited-English-speaking students would not be the sole index of these students' cognitive skills. Their scores on reading and mathematics tests written in English may be lower than average because of the difficulty they have reading the test questions.

No data are presented below for non-English-speaking students. Until suitable measuring instruments are available in the primary language of non-English-speaking students, attempts to measure the achievement of non-English-speaking students in basic skills would be inappropriate.

Reading. Figure V-15 shows that limited-English-speaking students scored below the national average in reading at all grade levels. As stated previously, however, one can expect the pretest scores of limited-English-speaking students to be substantially below the national average because of the students' limited language fluency at the time of the pretest.

TABLE V-26

Neglected and Delinquent Students in Local Educational Agency Programs Served by ESEA Title I, 1976-77

Type of program	Number of students served, by grade level and age of students					Total
	Preschool and kindergarten 2–5 years	Elementary 6–11 years	Junior high school 12–14 years	High school 15–18 years	Adult 19–21 years	
Delinquents in court schools	0	353	1,911	4,108	314	6,686
Delinquents not in court schools	0	717	2,886	8,071	3	11,677
Programs serving both neglected and delinquent	–	–	–	–	–	–
Programs serving only neglected	14	1,151	2,292	3,055	0	6,512
Tutorial*	0	445	618	950	0	2,013
Total	14	2,666	7,707	16,184	317	26,888

*Tutorial assistance for both neglected and delinquent students in addition to their regular school program

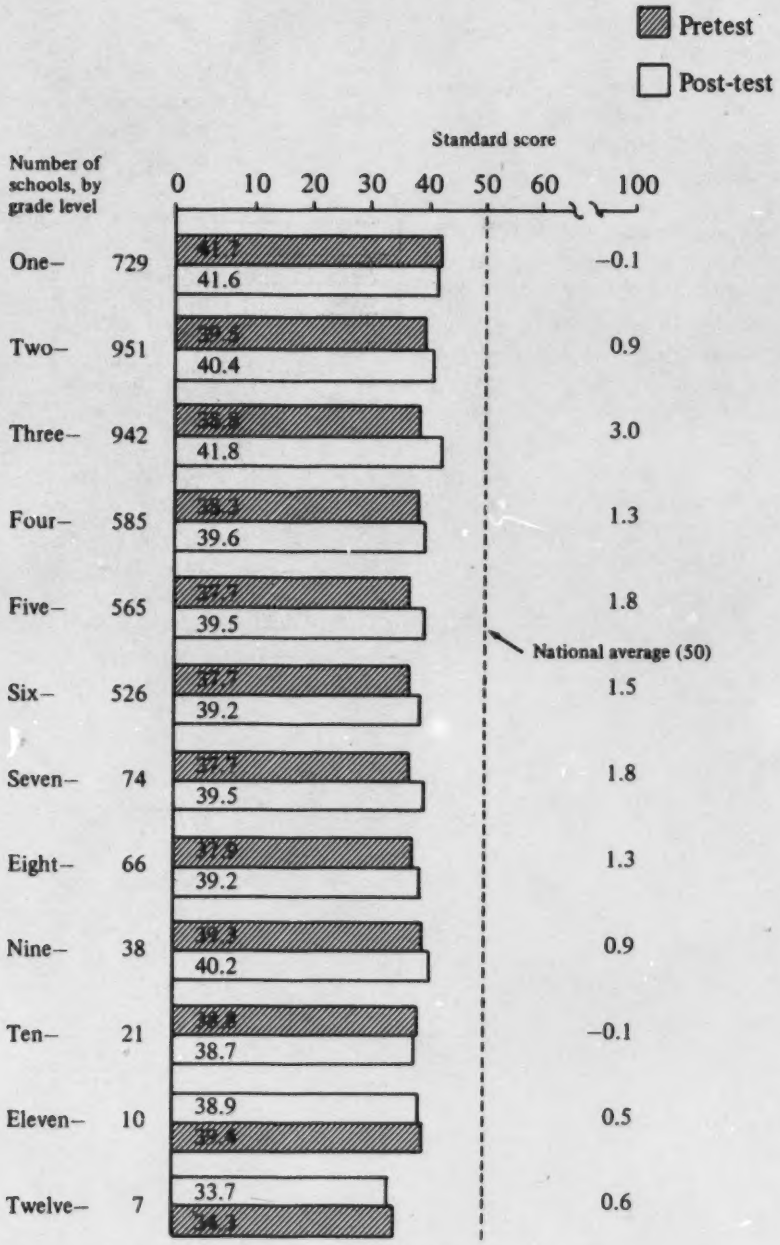


Fig. V-15. Pretest and post-test standard scores in reading achievement, by grade level, for limited-English-speaking students in school programs supported by consolidated funding sources, 1976-77

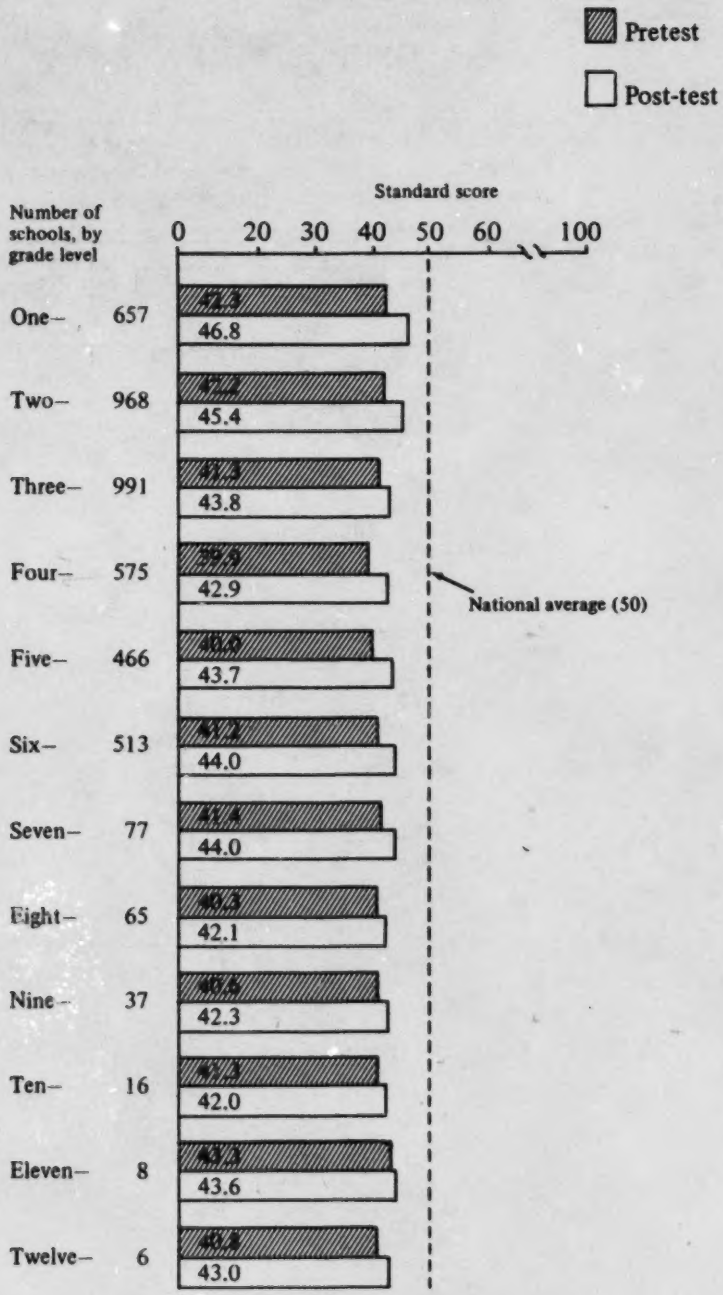


Fig. V-16. Pretest and post-test standard scores in mathematics achievement, by grade level, for limited-English-speaking students in school programs supported by consolidated funding sources, 1976-77

The limited-English-speaking students' post-test scores were also below the national average at all grade levels. These and the gain scores between the pretest and post-test are perhaps even more difficult to interpret than the pretest scores. Without more information it is impossible to determine whether a student's improvement between the pretest and the post-test was the result of improvement in the skill areas that the test was designed to cover or in English-language fluency skills. Most likely, the gain was the result of improvement in both language fluency and achievement. Whatever these gains represent, the pattern they show is encouraging. The rate of growth between the pretest and the post-test was greater than the usual growth shown in one year at all grade levels except grades one and ten.

Mathematics. Figure V-16 shows that the mathematics scores of limited-English-speaking students were below the national average at all grade levels on both the pretest and the post-test. The reader should note, however, that at most grade levels these mathematics scores were several points higher than the corresponding reading test scores. In part, this difference can be attributed to the fact that students with limited language fluency can answer more of the items on the mathematics test because less reading is required than on the reading test. At all grade levels the gain scores were above the national norms, and at most grade levels they were substantially higher.

Schools That Received Only Bilingual Education Funds

Most schools that received bilingual education funds also received support from one or more of the other consolidated funding sources. A few schools, however, received only bilingual education funds. Figures V-17 and V-18 show the reading and mathematics achievement, respectively, of limited-English-speaking students who participated in school programs supported by bilingual education funds only. So few students participated in these school programs—at most grade levels fewer than ten schools are represented—that no attempt should be made to draw any statewide program inferences. In both reading and mathematics, pretest and post-test scores were below the national average; and the gain scores, while in most cases positive, showed no consistent pattern.

Schools That Received Only Miller-Unruh Funds

Schools that receive funds only through the Miller-Unruh Basic Reading Act are not required to submit pretest and post-test achievement data for participating students. Thus, no separate information on the performance of such students is available for analysis. Schools that received Miller-Unruh funds and funds through other consolidated application funding sources submitted pretest and post-test student achievement data for all participating students. The analysis of these data is presented in the sections entitled "All Schools with Consolidated Application Funding" and "Multiple-Funded Schools."

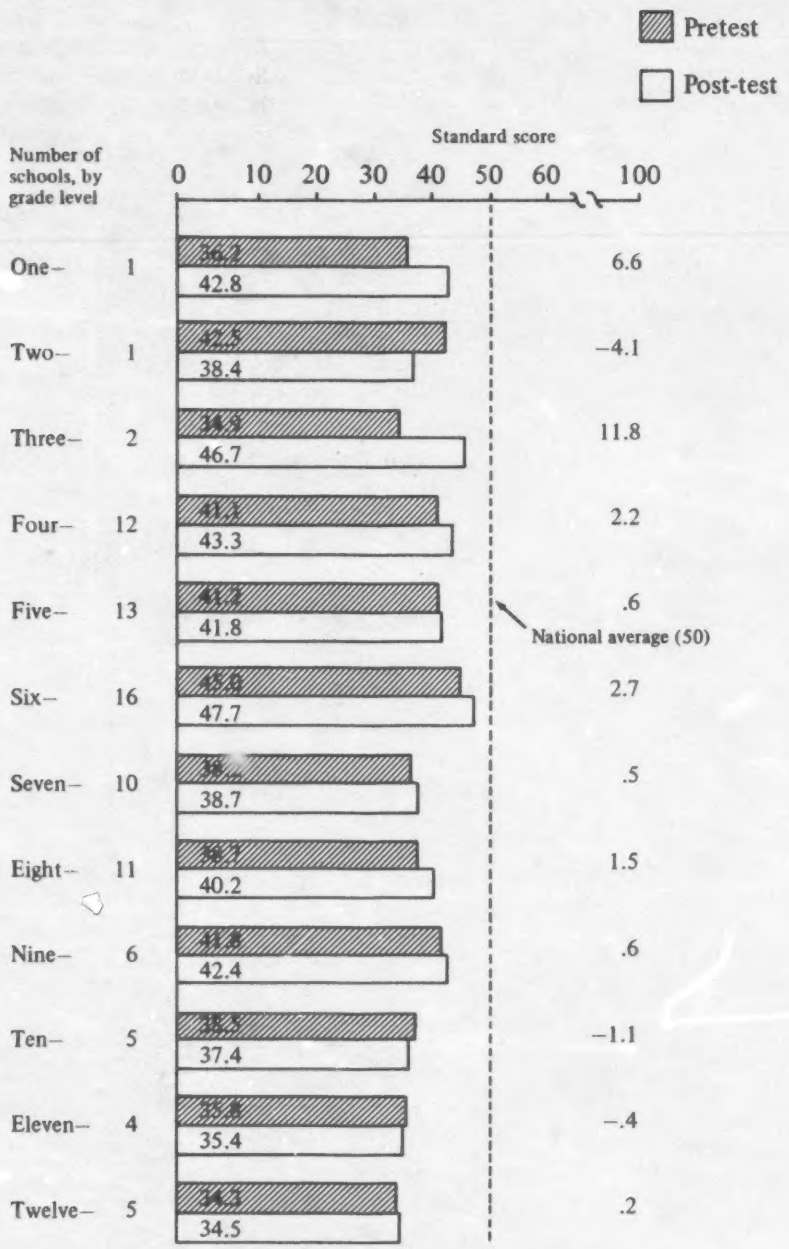


Fig. V-17. Pretest and post-test standard scores in reading achievement, by grade level, for limited-English-speaking students in school programs supported by bilingual education funds only, 1976-77

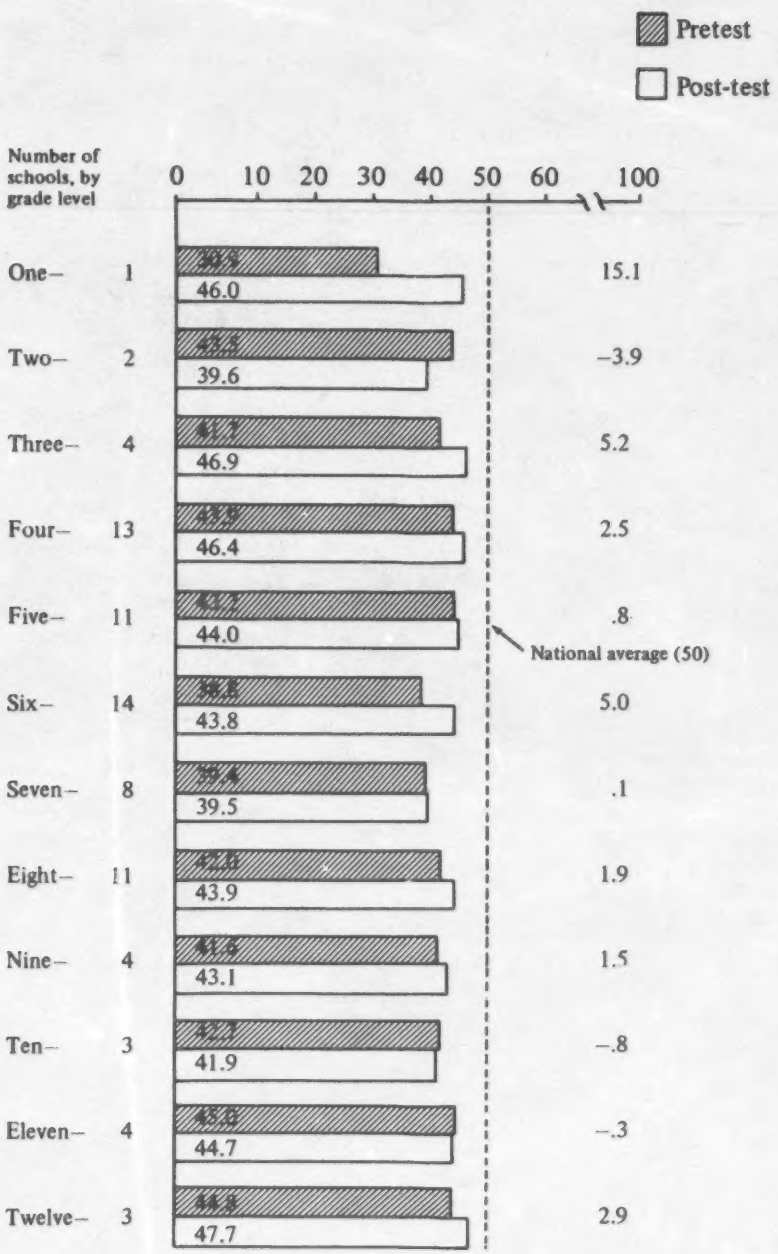


Fig. V-18. Pretest and post-test standard scores in mathematics achievement, by grade level, for limited-English-speaking students in school programs supported by bilingual education funds only, 1976-77

VI. Special Findings

The findings reported in *Evaluation Report of ECE, ESEA Title I, and EDY, 1975-76* indicated that in some schools, third grade reading scores, as determined by the California Assessment Program were declining. Specifically, the findings indicated that "in schools whose entering students averaged between the 21st and the 99th percentiles on the 1973-74 *Entry Level Test,* grade three reading achievement improved markedly beyond predicted levels after three years in ECE."[1] In contrast, "in schools whose entering students averaged below the 20th percentile on the 1973-74 *Entry Level Test,* grade three reading achievement declined relative to prediction after three years in ECE."[2]

Among the schools whose entering students averaged below the 20th percentile on the 1973-74 *Entry Level Test,* not all had grade three reading scores that each year were increasingly lower than the predicted average score. In some schools grade three reading achievement scores increased relative to the predicted score over the three-year period. In fact, of the schools whose students averaged in the lowest 20 percent on the 1973-74 *Entry Level Test,* 110 showed increases in residual scores, 146 showed decreases, and 121 showed no change.

While the overriding purpose of the Department's special study and the research conducted by SRI International was to determine why the average scores declined for some schools below the 20th percentile on the *Entry Level Test,* information about schools whose average scores increased was also considered.

Perhaps the most important question dealt with in the special study was "What circumstances are associated with decline or improvement in third grade student reading achievement?" Two complementary research strategies were selected for use in answering this question: (1) a traditional hypothesis-testing study of variables within classrooms, which was conducted by SRI International; and (2) a series of case studies of 16 schools—eight schools with increasing average third grade reading scores and eight schools with decreasing scores—conducted by the Department.

The SRI International study was designed to identify classroom processes related to changing test scores among the schools whose students averaged in the lowest 20 percent on the 1973-74 *Entry Level Test.* The research strategy employed in the study provided for identification of relationships between processes *within classrooms* and student achievement, but it did not provide for an examination of processes at the *school* level. Therefore, a second research strategy, the school case studies conducted by the Department, was employed.

So that the findings would represent the strengths of both strategies, an overlapping sample of schools was used in the studies. Seven of the 14 schools in the SRI International study were also included in the Department of Education's case studies. All schools in both studies were also ECE schools.

The information that follows represents a summary of the findings from both studies. A detailed report of the studies will be published separately as a companion document to this report.

Special Case Studies

Department of Education personnel, working in pairs as observers, conducted special case studies at 16 schools. The schools were selected on the basis of several criteria, including (1) having been in the lowest 20 percent of schools on the 1973-74 *Entry Level Test;* and (2) having shown an increase or a decline in third grade reading achievement on the California Assessment Program tests from 1973 to 1976.

An individual case study report was prepared for each school visited. Each report included the observers' explanation of why test scores had

[1] *Evaluation Report of ECE, ESEA Title I, and EDY, 1975-76.* Sacramento: California State Department of Education, 1977, p. 36.

[2] *Evaluation Report,* p. 36.

changed in the school. Findings and implications across schools were developed later.

Several limitations of the case study methodology impinge upon the interpretation of the outcomes of the case studies. Generalizations derived from the studies are limited to the population of the schools in the study sample; however, both the findings and the implications may be applicable to a broader population.

Another limitation is the *reconstruction* of past events. The usefulness of the reconstruction was dependent upon the quality and quantity of historical data gathered in the schools, which, in turn, were subject to varying degrees of staff turnover and accuracy of memory.

An important *distinction* should also be noted between a case study and a traditional statistical study. In the case study, unlike the statistical study, the significance of the findings and implications is not related to the frequency with which an event occurred.

The major findings of the case studies and their implications are presented below under the following headings: (1) Understanding of the Intent of Early Childhood Education; (2) Leadership and Management of Change; (3) Expectations of Teachers and Administrators; (4) Staff Development; (5) Teaching and Learning in the Instructional Program; (6) Curriculum; and (7) Evaluation. These topics were selected because of their uniqueness within schools and their commonality across schools and because the observers believed that aspects of each affected student achievement in some way.

Understanding of the Intent of Early Childhood Education

The findings related to understanding of the intent of early childhood education and the implications of those findings are discussed below.

Findings. The observers determined that the translation of the intent of early childhood education into educational experiences for children was impeded by the lack of understanding of many people about the intent of ECE. Breakdowns in communication were found to be common in schools with decreasing average reading achievement scores. In schools with increasing average scores, communication breakdowns were far less frequent. In most schools with increasing average scores, the observers noted a general sense of educational purpose that supported some of the specific purposes of ECE. Some other findings were the following:

1. Teachers, principals, parents, and children did things only because they believed that someone else (the state, for example) required them to do so; they did not see themselves functioning in terms of an intended purpose. For example, some individuals saw the school-level plan as a proposal required to obtain outside funding rather than as the documentation of a planning process, the purpose of which was to improve the effectiveness of the educational program.
2. Teachers, principals, and parents wanted to comply with such exhortations as "meet the needs of each child," but they did not know how to do so.
3. Incentives that were designed at the state level to effect reinforcement of the intent of ECE were misused for unrelated local purposes that often were tied to school or district politics or to the priorities of persons in key positions.
4. Some information was not available to people with operational responsibility, such as the principal, teachers, and aides. Communications from state, district, and staff development program personnel tended to be abstract, impersonal, and difficult to relate to problems in the classroom and the school.

Implications. The implications of the above findings are as follows:

- School, district, and state accountability procedures should focus more sharply on the purposes of education in general and of ECE in particular. Too often, accountability becomes a matter of doing something to "look good," such as keeping records on students but not using them.
- Supportive services to teachers, aides, principals, and other school staff should be designed more carefully for their respective users. Many school personnel need to be told "how to" and in terms with which they are familiar. They need to know what to do in their own worlds. Teachers, parents, and principals need to be better informed about ECE—what the options are, what the responsibilities are, what services are available, and generally what to expect.
- Communication—whether written or oral, from the state, from the district, or from within the school—should be more frank and personal, and the emphasis should be on the primary role of human beings in the educa-

tional processes. Too much of the information received by teachers, parents, and children is couched in the abstract language of "programs," which does not help people understand what they are to do.

Leadership and Management of Change

The findings related to leadership and management of change and the implications of those findings are discussed below.

Findings. The importance of leadership in managing change effectively was demonstrated at both the school and district levels. In three schools with increasing student achievement in reading, district-level leadership served as a supportive force in the introduction and implementation of new programs; at a school with decreasing achievement, district-level leadership proved to be an obstacle or disruptive force. School-level leadership emerged frequently as either a positive or negative factor.

In four schools with increasing achievement, the principal clearly exhibited positive leadership; in two schools groups of teachers assumed school-level leadership in managing change; and in one school the resource teacher emerged as the leader. Characteristics of positive leadership appeared to be (1) widespread involvement and delegation of decision-making responsibility to those charged with implementing decisions; (2) mutual trust in and respect for the competence and judgment of others; (3) anticipatory planning; and (4) support for ongoing skills development and learning.

By contrast, at most of the schools in which achievement had declined, either no leadership or negative leadership characteristics were noted. Authoritarian principals created an atmosphere of repression at two schools. In other schools the absence of effective leadership was illustrated by a lack of planning for changing school populations (particularly for large influxes of Spanish-speaking pupils) until a crisis situation developed and by a lack of leadership in matters pertaining to the selection and implementation of curricula and classroom organization.

Implications. The implications of the above findings are as follows:

- Changing school programs means, above all, changing people's ways of doing things. Good leadership, regardless of its source (principal, reading coordinator, teachers, or district-level personnel) is fundamental. The potential damage from poor leadership is equally important. Good leadership entails, among other things, close contact and involvement with those who have operational responsibility for implementing decisions, such as teachers and aides; mutual trust and respect; anticipatory planning; and support for ongoing skills development. These and other good leadership characteristics should be fostered through personnel practices and policies, especially through the appointment of school principals, and through staff development programs specifically designed to improve the leadership capabilities of those in leadership roles at the school, district, and state levels.
- The leadership potential of a core group of teachers at a school should be acknowledged and supported where possible, perhaps through the participatory planning features of ECE.
- The role of the district in improving school programs should be clarified.

Expectations of Teachers and Administrators

The findings related to teachers' expectations and the implications of those findings are discussed below.

Findings. From their school visits the observers concluded that teachers' expectations for and beliefs about the children they taught often seemed to influence the children's learning and that administrators' expectations of teachers' performance seemed to affect the performance of teachers.

The expectations of teachers for their pupils were reflected in various ways: (1) their perceptions of the children and their abilities; (2) their selection of curricular material; and (3) their standards for pupil performance. In schools in which teachers believed that the children had poor oral language skills and "many problems," the children performed poorly. At a school in which a teacher referred to non-English-speaking children as being bright and learning quickly, the children performed well. Decreasing scores were noted in schools in which the curriculum required little more than low-level tasks, such as rote responses. Increasing scores were noted in schools that had comprehensive curricula and in which mastery and competence were expected and demanded.

Where teachers were held accountable for their pupils' performance and given accurate information about that performance, their behavior was more likely to have a positive effect on pupils' test scores.

The differences in the characteristics and backgrounds of the children at the schools visited were great, but the differences in teachers' perceptions of and beliefs about the children were even greater. The observers concluded that the attitudes and expectations of teachers and other adults were significant factors in pupils' improving or declining in reading performance.

Implications. The implications of the above findings are as follows:

- The expectations for what children can learn need to be raised in many schools, especially those with a high minority population. This includes the teachers' expectations with regard to the following:
  1. The types of activities (reading and writing words, sentences, and paragraphs rather than just filling in the blanks, making rote responses, playing games, doing puzzles, and the like)
  2. The pace of each child's progress (each child making optimal progress consistent with the child's development rather than each child working as slowly as he or she desires)
  3. The quality of the children's work (regardless of the type or level of work, good workmanship rather than half-hearted, sloppy efforts)

Staff Development

The findings related to staff development and the implications of those findings are described below.

Findings. Three basic types of staff development programs were noted in the case studies:

1. *Ongoing inservice training closely tied to the instructional program.* In five schools this type of program was found to have an effect on staff behavior and classroom practices. The programs had a strong "how to" emphasis and were an integral part of the operation of the school. Extensive classroom follow-up was also conducted. In three schools the observers noted that the inservice training program also had a positive effect on pupil performance; in two schools they determined that the impact on pupil performance was negative.

   The programs that had a positive influence on pupil performance were characterized by the following: (a) the training helped the teachers adapt their existing instructional practices to the new program; (b) the training program was adequately comprehensive; and (c) the teachers were committed to the program. By contrast, the two ineffective staff development programs were "forced on" reluctant and antagonistic teaching staffs by authoritarian administrators.

   The effectiveness of ongoing inservice training programs that were closely tied to the instructional program was attributable, to a large degree, to the fact that they were people-specific; that is, aides were trained for the aide's job, and teachers were trained for the teacher's job. The training included details about what to do in the classroom. Training was provided in frequent sessions throughout the school year.
2. *Inservice training designed to improve the staff's abilities to serve ethnic and language minorities.* Most of the schools that were studied had significant minority populations, but at only four did the observers note inservice training programs designed to improve staff members' abilities to serve ethnic and language minorities. The observers did note that courses in multicultural understanding had a positive effect on the achievement of limited- and non-English-speaking students. Three schools offered Spanish language courses for teachers.
3. *Inservice training programs on a variety of topics that were not specifically related to teachers' responsibilities.* These were nonspecific presentations that were usually designed for a general audience of educators. Their impact on teacher behavior and performance was negligible.

Although not a form of inservice training, informal exchanges among teachers as they worked together to plan the kindergarten through grade three program were found to be of significant value. The world of the self-contained classroom has been opened up to fellow teachers, aides, and parents. In some instances this openness fostered an increase in the sharing of ideas, techniques, and materials and in commitment. In other cases this openness resulted in insecurity, retrenchment, and a sharing of excuses.

Implications. The implications of the above findings are as follows:

- Staff development programs at the school level should be more closely tied to the instructional program. Follow-up in the form

of observations in the classroom and feedback to teachers and aides on their performance should be included. The emphasis should be on helping teachers and aides to do their jobs better. Ideally, training sessions should be conducted frequently and should include demonstrations involving children.

- Staff development should be an integral part of school operations, not merely an additional or external activity.
- Inservice training should be designed to help teachers integrate new programs with existing practices.
- Staff development activities should not focus on any curricular area to the exclusion of others.
- Staff development programs should foster a clear sense of purpose and commitment to the program.
- Staff development activities that are not specifically related to the planned instructional program of the school should receive a lower priority and a smaller allocation of resources than those activities that are directly related to the instructional program. Conferences, workshops on tangential topics, workshops of a general nature, and outside consultants not familiar with the school program should *supplement* the basic staff development effort.
- Personnel at the state, county, district, and school levels should work together to identify the kinds of know-how that teachers and principals need and to ensure that such knowledge is widespread.
- Workshops at all levels should be devoted equally to providing know-how and clarifying purpose in relation to the content area.

Teaching and Learning in the Instructional Program

The findings related to teaching and learning in the instructional program and the implications of those findings are described below.

Findings. Individualization of instructional programs had positive effects on student achievement in those instances in which people provided instruction. Negative effects were noted in those cases in which instruction was provided primarily by means of materials, such as self-teaching materials.

In schools in which test scores increased, the observers noted the following: (1) initial teaching was done by people rather than by means of media, materials, or learning stations; (2) diagnosis of pupil needs was an integral part of the program, not an external activity; (3) prescription flowed from diagnosis and included instruction by teachers (or aides) rather than just a matching of pupils and materials; and (4) monitoring of the children's ability to use new concepts was a part of the instructional program.

Student performance improved in those schools in which learning centers were used for purposes of reinforcing students' skills. No success was noted in those schools in which teachers relied on curricular materials for instruction (as in a correspondence course). When children's work was not corrected or evaluated for long periods of time, their early misunderstandings were reinforced through repetition, which resulted in poor performance.

Implications. The implications of the above findings are as follows:

- Initial teaching should be done by the teacher (or some other person) rather than by means of media, materials, or learning stations.
- Diagnosis should be an integral part of teaching and learning rather than an external activity. The teacher should pay close attention to how each child responds to instruction and should make occasional informal assessments of the child's progress. The teacher should use the children's work as a primary source of diagnostic information.
- Prescriptions should generally include instruction by the teacher; they should not be limited to a designation of appropriate instructional materials.
- The child's ability to use new skills and concepts in a variety of contexts, such as using reading skills to read a science book, should be monitored. Reteaching should be provided when appropriate.

Curriculum

The findings related to curriculum and the implications of those findings are described below.

Findings. Reading scores declined in those schools in which the curriculum consisted entirely or mostly of reading. Scores increased in those schools in which students had ample opportunity to apply their reading skills in other curricular areas. The schools in which reading scores increased were characterized by the following: (1) teachers were committed to the programs; (2) the content of the curriculum was appropriate to the particular

needs of the pupils; for example, the content was sufficiently comprehensive and could be adapted to meet the special needs of pupils, including limited- and non-English-speaking children; and (3) the implementation of the curriculum was accompanied by effective staff development and follow-up activities.

A decline in reading scores was noted in those schools in which strong emphasis was placed on decoding and phonetic analysis and little emphasis was placed on such integrated skills as comprehension and composition.

Implications. The implications of the above findings are as follows:

- Students should have ample opportunity to apply their reading skills in a variety of curricular areas.
- Within the reading program a variety of reading skills should be taught.
- Steps should be taken to ensure teacher commitment to programs. Teachers should be involved in the selection of new materials and programs.
- The curriculum should be such that the needs of *all* students can be met.

Evaluation

The findings related to evaluation and the implications of those findings are described below:

Findings. Four problems were noted in the area of evaluation in all schools in the study: (1) school personnel had minimal information or incorrect information about the tests and test results; (2) school personnel failed to use the information that was available; (3) monitor and review ratings and test scores are assessments of different aspects of the school operation, and school personnel had difficulty integrating and interpreting both types of information; and (4) the means available for identifying and assessing the progress of limited-English-speaking and non-English-speaking children and for evaluating bilingual education programs were inadequate.

Personnel at several schools could not recall the California Assessment Program reading tests, and none of the teachers who were interviewed had seen the test results. Many teachers and administrators did not distinguish between the California Assessment Program tests and the standardized tests that they administered. In two instances school personnel believed test scores had decreased when, in fact, they had increased. In another school the reverse of this situation was noted. Observers found only one instance in which a program had been modified as a result of either the monitor and review evaluation or the California Assessment Program test results.

The use of an English-language test to measure the progress of students whose primary reading instruction was provided in Spanish was found to be a serious problem.

Implications. The implications of the above findings are as follows:

- School personnel should be instructed in how to use tests and test results in the district, in the school, and in the classroom.
- The relationship of the strategic implementation components of ECE—planning, implementation, and internal and external program quality review—needs to be stated more explicitly.
- The relationship between program management and evaluation should be clarified at the school level. School personnel do not seem to view programs in terms of people and behaviors.
- In some schools with full bilingual education programs, heavy emphasis is placed on instruction in the students' primary language during their early years of elementary school; in the later years emphasis is placed on instruction in English. A need exists for some way of assessing the students' progress during both phases of their education.

Classroom Processes Evaluation Study

The study conducted by SRI International was designed to examine classroom processes that might be related to students' reading achievement. The study sample, which consisted of 45 third-grade classrooms in 14 schools, was drawn from the same group of schools that the Department used in its special case studies. All schools had been participants in ECE since 1973 or 1974. The average score of each school on the 1973-74 *Entry Level Test* was at or below the 20th percentile. Half the schools had had increasing residual scores on the California Assessment Program third grade reading test over a three-year period, and half had had decreasing residual scores over the same period. The schools were also selected on the basis of high or low concentrations of limited- and non-English-speaking children.

Carefully trained observers spent two days in each third grade classroom. They recorded data on the Classroom Observation Instrument. This instru-

ment allowed for the collection of three types of information:

1. *Classroom summary information*—Classroom summary information included the number of children enrolled, the number present on the observation day, the number of teachers and aides assigned to the classroom, the number of volunteers or visitors present, and the length of the school day.
2. *Physical environment information*—Physical environment information pertained to the classroom setting, including the presence and use of specific equipment, instructional materials, games, toys, and displays; the types of desks and tables and their patterns of placement; pupil seating (whether assigned or self-selected); and pupil groups (whether assigned or self-selected).
3. *Classroom procedure information*—Classroom procedure information dealt with classroom processes and structure and interaction in the classroom. Activities were described in terms of the distribution of children and adults at a particular time, child and adult grouping patterns, adult roles, child involvement, and materials used. A five-minute observation was made of the activities, grouping, and interaction of a preselected "focus" person; and a five-minute process observation was made of that person. The observations were made several times each hour.

The information derived from the observations included information about who did what to whom and how. From the observations a large number of classroom process variables were identified. From California Assessment Program reading test data, a reading achievement dependent measure was calculated for each classroom in the study. Also, an average absence rate was determined for each classroom from pupil attendance data. The achievement measure and absence rates were each analyzed in terms of their relationships with the classroom process variables.

Findings

Several analyses were carried out to study the instructional processes used in the sample classrooms. Schools with increasing average scores were compared with those with decreasing scores. Classroom process variables and reading score correlational patterns were examined. Because classrooms within the sample varied greatly with respect to reading pretest scores and with respect to gain scores, subgroups within the sample were compared. Finally, the relationship between absence rates and instructional process variables was examined.

The 20 classrooms in schools with increasing scores were compared to the 25 classrooms in schools with decreasing scores to determine the relative occurrence of the process variables in the two sets of classrooms. Although 76 variables were found to differ significantly between the two groups, two problems made interpreting the differences difficult. First, although efforts were made to determine matched samples of schools, demographic differences between the samples did exist, and statistical adjustments for the effects of the differences were impossible to make. Second, and most important were the significant differences within schools (between classrooms) in both achievement and process variables. When the differences between classrooms within schools are greater than those between groups of schools, those between groups of schools cannot be explained as readily.

Several analyses of the relationships between reading achievement scores and classroom instructional process variables were conducted. Since wide variations existed among the classrooms studied in terms of pretest (in this case, second grade) reading scores, the pretest differences were taken into account in the analyses.

Within the classrooms studied the lower the ratio of students to adults was, the higher the achievement test scores were. How teachers organized their classrooms, used aides, and grouped children had a relationship to reading achievement. The data indicated that teachers should assign students to work groups rather than allow them to select their own groups or places to sit during work time. Scores were higher in classrooms in which adults worked with children in small groups than they were in those in which adults worked with children on a one-to-one basis. This finding does not mean that teachers or aides should not work with one child at a time; it indicates only that within a normally functioning classroom, efficiency is not achieved when much of the reading time involves working with only one student at a time. In many instances, when adults spend a great deal of time with individuals, other children are not able to continue their reading tasks because they lack the necessary direction and supervision. For some of the time, teachers were not involved with the children. They graded papers, prepared lessons, talked with other adults, prepared art

materials, or were out of the room. In those classrooms in which such situations occurred most often, scores were low.

Activities and materials were also analyzed in terms of reading achievement. The more time children spent sharing ideas and participating in group discussions, the lower their post-test scores were. One should not infer that time should not be spent in group discussions. The time spent in such activities should not be so great as to leave too little time for reading. The more time children read or the more time that was spent on reading, the higher the test scores were.

Several materials or resources had a positive relationship with the post-test scores, including instructional charts, achievement charts, and instructional games. Basic equipment and instructional materials were significantly related to gains. The use of noninstructional games was negatively related to achievement gains.

A third area in which classroom variables were analyzed in terms of reading achievement was the types of interactions that occurred between teacher and child.

A very direct method of instruction had a positive correlation with the post-test score. In such a method the teacher provides instruction and asks the children direct questions about the subject, the children respond, and the teacher provides feedback, letting each child know whether the response was acceptable. The correlation between reading achievement and acknowledgment and corrective feedback for responses to questions was especially high.

The more children asked questions, the higher their scores were. Scores were higher in those classrooms in which adults responded with a direct question than they were in those classes in which adults responded by supplying the answer.

In those instances in which adults and children were most often involved in nonacademic interactions, the reading test scores were low. Test scores were also low in classrooms in which children exhibited negative or disruptive behavior.

For another analysis classrooms were grouped on the basis of the level of their average pretest scores (students' average score) and the average gain in score between the pretest and the post-test. Two groups, both of which had medium to high pretest scores, were selected for comparison. One group showed little or no gain from the pretest to the post-test.

The other group did show some gain. The group that showed gains differed from the group that showed no gains in a number of ways. The average class size in the no-gain group was twice that of the gain group. The ratio of students to teacher was much lower in the gain group (approximately 6:1) than it was in the no-gain group (approximately 13:1). The difference in this ratio could account for much of the difference in test scores, but the manner in which the teachers and aides worked with the children was of primary importance.

The two groups differed in terms of instructional processes in several important ways. In the gain group the teachers generally provided instruction to small groups and used a direct approach in their teaching. They made great use of educational equipment and materials, including audiovisual equipment. During nonacademic activities they often asked open-ended questions, and the children often made extended responses.

In the no-gain classrooms, the teachers often worked with one child at a time, and the other children worked independently. Arts and crafts and drama activities were more frequent. Teachers were less often directly involved with children, and the children exhibited more negative behavior.

A high rate of absence was a problem for teachers and students. The average absence rates for the 45 classrooms ranged from 1.0 to 22.5 days per student. The relationships between classroom variables and student absence rates were analyzed.

High pretest and post-test scores were noted in classroom that had low absence rates.

The number of aides in the classroom and the ratio of students to adults was related to the student absence rate. The lower the ratio of students to adults, the lower the absence rate. More absences were noted in classrooms in which stationary desks were placed in rows and students were assigned to seats than were noted in classes with different seating patterns and requirements.

Several variables in the organization of student groups and the responsibilities of the adults were related to absence rates. Children in classrooms in which the adults worked with one child at a time were absent less often than those in classrooms in which the adults worked with children on most other bases. Students were also absent less often in classrooms in which adults observed often or attended to small groups of children. An apparently contradictory finding was that in classrooms in which children often worked independently in either reading or math, the absence rate was low. From this finding one can infer that children

enjoyed personalized attention but also enjoyed working independently.

Activities and periods that were less task-oriented and more social in nature—group time, transition, snack time, and lunchtime—had a positive relationship with absence rates. The greater the occurrence of such activities and periods, the higher the absence rate. Also, absence rates were best in those classes in which adults were frequently involved with children and children were frequently involved in activities. Reading and math activities had a negative relationship with absence. Children in classrooms in which rigorous academic activities were conducted were absent less often than children in less academically oriented classrooms.

Attendance appeared to be better in classrooms that included a business-like, structured approach to education than in less structured classrooms. Verbal interactions of an academic nature had a positive relationship with school attendance. Interestingly, a more relaxed interaction pattern in which children initiated and adults responded was negatively related to the absence rate. The more adults had to control behavior and the unhappier children said they were, the higher the absence rate was.

The variables present in a more structured, teacher-directed approach to education had a positive correlation with reading post-test scores. Thus, pretest and post-test scores were highest in those classrooms in which the absence rate was lowest.

Other ECE variables, such as the presence of aides in the classrooms, had a positive association with reading post-test scores and a low absence rate. Individualized attention to children was associated with a low absence rate but not with high or low reading test scores. A variety of instructional materials was associated with reading achievement and a low absence rate.

Conclusions

The in-depth study of selected ECE classrooms indicated that the instructional methods or processes used in some classrooms were more efficient in teaching reading than those used in other classrooms. Of particular importance were the findings that gains were greatest and the absence rate lowest where the student to adults ratio was lowest.

However, merely having a number of adults in the classroom did not improve student progress. The manner in which groups were organized and managed was of critical importance. Teachers in the classrooms in which gains were small often instructed one child at a time even though the ratio of adults to children was quite high. This organization resulted in the other students' working for long periods of time on their own. Also, children in classrooms organized in this manner exhibited negative behavior more often than those in classrooms organized in other manners. One staff person working with one student at a time during the class reading period did not appear to be an efficient strategy.

The greatest gains in reading were made by students in those classrooms in which adults often worked with small groups of students and often used direct teaching methods (providing instruction and asking questions or asking students to read aloud). In such classrooms the students received immediate feedback for their responses. If a response was correct or satisfactory, the student received acknowledgment or praise, and if it was incorrect, the student was guided to a correct response. Teachers in these classrooms were very successful in keeping students working on the desired tasks. Consequently, very little misbehavior was noted in these classrooms.

VII. Locally Developed Evaluation Reports of Special Programs

For several years the Department of Education's annual evaluation report of special programs has included findings based on (1) data submitted by districts on the Consolidated Evaluation Report forms (Form E-127P); and (2) the results of the California Assessment Program tests. These data have been augmented by findings from various special studies undertaken by the Department in an attempt to add depth to the relatively narrow view of special programs obtainable from the limited common data that were available from participating schools.

Each year school districts conduct evaluation studies to serve local needs. The findings from many of these studies apparently have value beyond serving local needs. To investigate how this resource of evaluation data might be tapped, the Department obtained and reviewed during late summer of 1977 copies of locally developed reports from a sample of 12 districts. The districts varied in size from some of the smallest to some of the largest in the state. The Department received a total of 77 reports. A few were only two or three pages in length; some exceeded 40 pages. No district submitted an individual report for all of its schools. The large districts typically prepared the greatest number and kinds of special reports.

The pattern of having both state-required reports on state-devised forms (Form E-127P) and locally designed and used reports of the evaluation of special programs has been developed over the years in response to certain changes in the requirements for specially funded programs. The evaluation of special projects over the past 11½ years (beginning with the first evaluation of ESEA Title I programs) began with a generalized approach. The programs in most districts were designed to be common to all schools within the district. Consequently, the Department required only one locally developed evaluation report (written largely in narrative form) for each commonly funded district program. The same report served both state and local purposes. Usually, limited evaluation data were also provided by the district evaluator to each participating school, and a summary report was presented to the district governing board.

As it became apparent that the locally developed reports were too varied and too voluminous to be practical for summarization at the state level, forms were devised for district use, and common data were collected for state use.

In 1970 the evaluation of individual school programs became necessary because of new state requirements.

To alleviate the problems of districts in preparing and submitting multiple reports and to keep the number of pages of reports at a manageable level for the Department, the Department has markedly reduced the length of the required reports over the years. Much of the report now comes to the Department in a coded form so that data processing services can be used. The data requested include an accounting of participants, their standardized test scores, and a summary of the extent to which planned objectives were met. No narrative now accompanies the reports.

The Department has attempted, through a variety of ways, to promote thorough evaluation of district and school programs at the local level. It has recognized that such evaluation, and reporting, must go beyond that which is required for completion of the state forms. The kinds of data appropriate for aggregation statewide are inadequate for purposes of program improvement and needs assessment at the local level. Evaluation procedures and reporting formats must be adapted to fit the various audiences (school staffs, parents, district office staffs, and governing boards) for whom they are intended. The Department has therefore encouraged districts to continue to prepare the narrative reports in addition to completing the state forms.

Types of Local Evaluation Reports

Many factors affect the content and type of locally developed evaluation reports. First, varia-

tions are essential in reports or presentations to different audiences. Second, reports for similar audiences may differ from district to district because of unique circumstances.

Typically, local evaluation reports fall into the following categories:

- *District reports to the governing board:* Nearly all districts in the sample prepared a written report for their governing boards. The report was in layperson's language and included information about the kinds of specially funded programs in the district and the results of the programs. The reports of the districts in the sample were from 20–50 pages in length. In general, sections were devoted to background information, evaluation procedures, results, and conclusions.
- *Individual school reports:* Most districts in the sample also prepared a report for each participating school. These reports were 5 to 20 pages in length and consisted of a brief program description, information about the extent to which the school's objectives were met, a description of the solution procedures that were implemented, identification of those procedures that were effective, and an analysis of standardized test scores for various groupings of students for the current year and, where possible, over several years (longitudinal data).
- *Test score analysis reports:* Several districts in the sample prepared separate detailed analyses of standardized test results. These typically included comparisons of current scores with scores from previous years, comparisons of results from different grades, and comparisons on a subject-matter basis.
- *Evaluation abstracts:* Some districts prepared a separate evaluation abstract that consisted of a program summary. These included information on goals, program scope and costs, main features, and evaluation results. Also included were recommendations for program improvements and implications.
- *Needs assessment data:* Some districts in the sample supplied to each school a report containing both districtwide and individual school needs assessment data that could be used by the school's program planning committee.
- *Special studies:* Most districts also reported on special studies that they had conducted throughout the year. Such studies were conducted only periodically in some of the small districts and on a regular basis in some of the large districts. More detailed information about the special studies may be found in Appendix 4.

An extensive amount of information is included in the local evaluation reports.

Examples of Comments About Programs

The following excerpts from the reports of the 12 districts in the Department's sample illustrate just some of the types of information provided in local evaluation reports. (See Appendix 4 for additional excerpts and comments.)

Impact of Programs

> Workshops in which teachers and aides worked together have been extremely productive because they made items that they needed. Research and new ideas were introduced, and the latest materials were made available for their review.

> Post-test grade equivalent scores for the . . . school year were higher at nearly all grade levels for reading and mathematics than the previous year. In part, this may have been due to a change in test forms in the overall testing program. Gains in reading and math from pretest to post-test for the total group of . . . students were also higher than for the total group of project students the previous year.

> The . . . procedures . . . have been carried out so very effectively due to the combined efforts of our outstanding facilitator, dedicated teachers, aides, and volunteers. As a parent and an aide, I feel the ECE program is meeting the varied educational needs of our children.

> I cannot imagine that a better educational experience for K-3 children is available anywhere. I am particularly impressed by the thoroughness with which each objective is defined, carried out, and constantly evaluated. However, the school goes far beyond each stated objective—the program is even better than it appears in writing.

> There was an improvement in this year's attendance rate over last year's.

> The students became interested in math operations activities because they had the use of calculators to check their work themselves without waiting for the teacher or instructional assistant. There was enough challenge for the students to do the work correctly so that they could come up with the answer that was on their calculators. This project was so successful that plans call for expanded use [of calculators] in all of the sixth grade classes next year.

> Given the standardized test data available, the Title I/SB 90 program clearly can be said to have been effective in meeting academic objectives. . . . At each of the K-3 grade levels, the 17 percent net shift objective

was met, and median percentile score gains also served to indicate greater than expected growth for participants in each grade and subject area, but particularly in mathematics. Though the gains lessen in each succeeding grade level, they remain as indicators of movement in the right direction across all of the grades served by the consolidated funding program.

In 1976-77 reading scores showed that approximately 25 percent of the pupils gained two months or more for every month of instruction. In fact, 8 percent of the pupils gained three months or more for each month of instruction. In mathematics, 36 percent gained two months or more for each month of instruction, and 15 percent gained three months or more.

While most of the specific school objectives for reading and math were attained, there are a number of operational problems that need resolution. In interviews conducted at midyear, teachers and aides in many schools expressed continuing concern over the record-keeping loads required for participation in special programs—particularly those relating to individualizing instruction. In some schools profiles showing student progress in mastering skills were not being kept, or were not up to date. In some schools there was some confusion on the part of teachers as to the value and necessity of keeping such detailed records. Evaluators reported these and other findings to compensatory education personnel at that time; and, to the extent possible, they followed up to see what help could be given to the schools. There is still a need for further attention, especially since reading and math are considered high priority district and school components.

Classroom management problems increase as programs become more individualized. In some cases because of increased paperwork, recordkeeping, and the time needed to manage other adults, the result may be less time available for working with individual students.

Teachers and aides reported continuing inservice training needs in the areas of reading and mathematics, bilingual and multicultural education, and individualization and classroom management. There is still some need for clearer short-range and long-range goals and objectives across the entire compensatory education program and for the setting of priorities at the school and district levels.

Program personnel and evaluation personnel need to develop cooperatively clearer definitions of individualized instruction to ensure more effective evaluation in the future.

Over three-quarters of the teachers fa[vored] the following three activities to be the mo[st effecti]ve in staff development: inservice workshops, [individual] assistance from specialists, and classroom visitatio[ns]. Classroom demonstrations were rated by 53 percent of the teachers as being the least effective strategy in staff development.

There has been a relative decline in gains at grade three.

Bilingual-bicultural education objectives were met in 7 of 13 instances. In cases of nonattainment, data were not available for analysis.

I referred three children and got no results or conferences with the psychologist about any of them.

The topics for staff development could be more relevant to the actual needs of particular schools and types of students and designed on the basis of the experience of the staff involved.

Longitudinal Studies

Trends . . . include an almost steady climb in post-test grade equivalent scores since 1970 in grades four through six but a varied pattern in grade three. Sizable gains over previous years are shown . . . in grades three, five, and six.

In mathematics, at the end of the third full ECE year, grades one and two were making better than month-for-month gains, but grade three was falling behind month-for-month progress.

The number of pupils scoring above the 50th percentile (Q_2) has increased more than 11 percent since May, 1972. The number of pupils scoring above the 25th percentile (Q_1) has increased by 9 percent since May, 1972.

Across the entire consolidated program, however, the number of parents said to be involved is increasing each year. For example, while 550 parents were listed as regular participants in 1974-75, the figure for 1975-76 exceeded 1,300.

In almost every school the pattern of growth, measured annually from fall to spring, shows what is sometimes called the "sawtooth" effect—substantial growth during the school year but a loss during the summer. The summer loss appears to be more pronounced among low-scoring pupils and is typically greater in mathematics than in reading.

The most encouraging sign of all has been the steadiness of the improvement made by pupils over the years of the Title I program. It appears that successful programs require time for training the staff in how to implement the programs and that staff commitment to improved instructional programs has a cumulative effect leading to continued growth.

We have the *Comprehensive Tests of Basic Skills* reading and mathematics scores for local children who were tested in October, 1974, in grade four and who were still attending the same ESEA Title I schools in May, 1977, when they were post-tested in grade six. While the analysis of the gains made during this period of 27 school months may not prove the value of the ESEA Title I program, the longitudinal data for these children certainly weaken the criticism that "compensa-

tory education programs show only temporary gains" so far as the local program is concerned.

A careful follow-up was conducted to find out what had happened to those pupils whose scores on the *CTBS* tests in October, 1974, placed them in the bottom quarter on the basis of national norms. . . . A very high proportion of these weakest pupils in grade four were found to have moved out of the bottom quarter when evaluated on the basis of grade six norms in May, 1977.

Program Modifications

Further clarification of the roles and responsibilities of central office and area office administrative and resource personnel as well as definitions of services available to school sites from these offices is needed.

The utilization of the reading specialist in the classroom is desirable for limited training. This training should be followed by an independent program of each (teacher and specialist) with half a class. This encourages follow-up of instruction by the specialist.

A concentrated effort to improve reading comprehension skills needs to be planned and carried out at each school site. Some techniques that could prove helpful are:

- Small groups for reading instruction
- Oral reading by the teacher on a regularly scheduled daily basis
- Selection and purchase of materials designed to provide practice in comprehension skills
- Timely daily feedback to students on their efforts in this area

Analyze carefully the potential role of manipulative materials in each school site's mathematics program and the relationship of such materials to the chosen basal textbooks.

Future district ECE planning should preserve the positive aspects of parent participation, use of aides, and restructuring efforts.

Practices that may tend to lower pupil time spent on basic skills learning under directed instruction should be examined.

Staff development objectives should be measurable. These objectives must be based on problems revealed by the evaluation findings with regard to:

- Maintenance of direct instruction for pupils
- Effective management of aides
- Effective use of volunteers
- Systems for efficient recordkeeping and inservice training for better management of individualized instruction

Auxiliary services personnel should analyze the causes for the widely varying ratings for their activities to see whether, with the available resources, the delivery of services can be improved.

More Filipino culture books and materials should be added as parents have requested.

General Concerns

Available data suggest that new pupils are likely to have lower reading and mathematics scores than pupils who have moved away.

A need exists for local evaluation of specially funded programs. The authors are convinced that evaluation designs that are more appropriate than those that can be conducted within the state-required evaluation framework must be developed. For instance, the magnitude and nature of the overall recordkeeping load inherent in the conduct of special programs needs to be assessed. The impact of recordkeeping on the quality of instruction also needs to be assessed. Within the state's evaluation framework and design, neither the mandate nor the resources exist to study such problems. In addition, evaluation specialists should help administrators identify specific strategies school staffs have developed that enable them to cope with requirements while building and maintaining high quality instructional programs. In this way school staffs having problems can receive more effective and more individualized administrative support.

Interpretation of Findings

Too often a writer seems to cry "failure" primarily because a program has not attained those goals that the writer has selected as the true indicators of success. The concept of a program being designed to meet certain well-defined goals or objectives that are based on documented needs and that are being evaluated, in turn, in relation to those goals and objectives seems to be a well-accepted concept. Nevertheless, it appears to be a concept that is too often cast aside when writing for a national audience. The cause of "finding out" so we can "follow up" would usually be better served if the critic would determine whether his or her criticism should be directed toward the goals and objectives selected for the program rather than toward those results that he or she interprets as "failure."

Having 85 percent of the objectives typically exceeded, completely attained, or substantially attained does not sound like failure. Whether that figure represents adequate or very satisfactory achievement can probably best be answered by the school staffs, who know what lies behind the numbers.

In a normal population sample, however, 50 percent of the participants are, by definition, below the median. Thus, while the program objective is eminently commendable and measurable, it may be unrealistic; it is more realistic to expect that only the excessive percent of students below the national median be consistently diminished or eliminated.

Before going on to the body of this report, a brief discussion of academic growth and several other items relative to the analysis must be considered. Briefly, when examining the test analysis tables, growth can be considered "greater than expected" in comparison to the national norming population if the median percentile

score of a matched sample of students increases from pretest to post-test.

With numerous variables operative in the influencing of reading scores, it is difficult to draw any conclusions on the basis of one or two matched groups.

To assess growth in reading and mathematics skills, educators typically look at a group's average grade equivalent scores at two points in time to see whether the group is scoring more like the national sample, or "norm" group. The difference in grade equivalent scores on two different testings is usually interpreted as being "growth" in months or years. The publishers use sophisticated projections and estimates to arrive at the grade and month estimates for most scores, but they are still only estimates. Growth interpretations should be made with caution.

Other Publications Available from the Department of Education

Evaluation Report of Multiple-Funded Programs, 1976-77, is one of approximately 400 publications which are available from the California State Department of Education. Some of the more recent publications or those most widely used are the following:

Administration of the School District Risk Management Program (1977)	$ 2.50
An Assessment of the Writing Performance of California High School Seniors (1977)	2.75
Attendance and Enrollment Accounting and Reporting (1977)	2.80
Bibliography of Instructional Materials for the Teaching of French (1977)	1.50
Bibliography of Instructional Materials for the Teaching of Portuguese (1976)	.75
Bicycle Rules of the Road in California (1977)	1.50
California Guide to Traffic Safety Education (1976)	3.50
California Private School Directory 1977	5.00
California Public School Directory 1978	11.00
California School Accounting Manual (1976 edition, including 1978 revisions)	1.65
California School Effectiveness Study (1977)	.65
California School Lighting Design and Evaluation (1978)	.65
California Teachers Salaries and Salary Schedules, 1977-78 (1978)	10.00
Discussion Guide for the California School Improvement Program (1978)	1.50
District Paid Insurance Programs in California School Districts, 1977-78 (1978)	2.50
English Language Framework for California Public Schools (1976)	1.50
Establishing School Site Councils: The California School Improvement Program (1977)	1.50
Guide for Multicultural Education: Content and Context (1977)	1.25
Guide for Ongoing Planning (1977)	1.10
Handbook for Reporting and Using Test Results (1976)	8.50
A Handbook Regarding the Privacy and Disclosure of Pupil Records (1978)	.65
Health Instruction Framework for California Public Schools (1978)	1.35
Hospitality Occupations Curriculum Guide (1977)	3.00
Physical Education for Children, Ages Four Through Nine (1978)	2.50
Planning Handbook (1978)	1.50
Site Management (1977)	1.50
Social Sciences Education Framework for California Public Schools (1975)	1.10
Students' Rights and Responsibilities Handbook (1978)	1.50

Orders should be directed to:

California State Department of Education
P.O. Box 271
Sacramento, CA 95802

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A complete list of publications available from the Department may be obtained by writing to the address listed above.

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